



THE DEVELOPMENT OF CURRICULUM COMPONENTS AS THE FOUNDATION FOR IMPROVING LEARNING QUALITY IN ISLAMIC EDUCATIONAL INSTITUTIONS

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Submission: 10-11-2022

|Review: 17-01-2023

|Published: 25-02-2023

Keywords :

*Curriculum,
preparation,
development,
components,
principles,
challenges.*

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ABSTRACT

This study aims to comprehensively analyze the structure of curriculum components as a foundation for improving the quality of learning in Islamic educational institutions. The main objective of the study is to understand how curriculum components can be designed systematically and integratively to serve as a strong basis for sustainable improvement in learning quality within the context of Islamic education. The main aspects discussed in this study include: the definition of curriculum components; structuring; the main components of the curriculum (educational objectives, learning content or materials, learning strategies or processes, and evaluation of learning outcomes); the role of supporting curriculum components (graduate profile, learning outcomes map, and Semester Learning Plan/RP); principles of curriculum component structuring; curriculum design models (Tyler, Taba, and OBE); and challenges faced in curriculum development in Islamic educational institutions, including misalignment between Graduate Learning Outcome (CPL) and learning content, weak integration of the Merdeka Belajar–Kampus Merdeka policy, gaps in graduate competency and limited lecturer capacity in curriculum design. This analysis aims to provide a deeper understanding of how curriculum components can be designed systematically and integratively to become a strong foundation for sustainable improvement in learning quality, as well as how curriculum design principles and models can be effectively implemented in the context of Islamic education.



The study employs a library research approach with a qualitative-descriptive analysis method of relevant scientific sources, such as books, academic journals, previous research findings, curriculum-related regulations, and official documents related to Islamic education. Data were analyzed through a thematic categorization process to map the conceptual framework, principles, and challenges of curriculum component structuring in the context of Islamic education. The results show that the structuring of curriculum components must be based on Graduate Learning Outcomes (CPL) covering aspects of attitudes, knowledge, general skills, and specific skills, and must integrate religious and general sciences holistically. Coherent, relevant, flexible, and comprehensive curriculum components are key to creating active, contextual, and learner-centered learning. In addition, curriculum implementation requires careful planning, active involvement of educators, alignment with the Merdeka Belajar–Kampus Merdeka policy, and enhancement of lecturers' capacity in curriculum design. The novelty of this study lies in the integration of modern curriculum design approaches (OBE) with the context of Islamic education, while also highlighting the strategic role of supporting curriculum components such as the graduate profile, learning outcomes map, and Semester Learning Plan (RPS). These findings provide important implications for administrators of Islamic educational institutions, curriculum developers, and educators in designing and implementing curricula that are relevant, coherent, and oriented toward the formation of competent, adaptive, and Islamic-minded graduates.



A. INTRODUCTION

Curriculum is the core of the entire educational process because it serves as a guide for the direction, content, and quality of learning implemented in educational institutions. A curriculum does not merely function as a collection of subjects, but as a set of plans and arrangements that reflect educational philosophy, societal needs, and the development of knowledge. In the context of Islamic educational institutions, the curriculum plays a strategic role not only in developing academic competencies but also in shaping the character, morals, and Islamic values of students in an integrated manner.

The formulation of curriculum components is a crucial initial stage in ensuring the quality of learning. Curriculum components consisting of educational objectives, learning content or materials, learning strategies, and evaluation of learning outcomes must be designed coherently and integratively. A curriculum is a written document that systematically describes the learning experiences provided to students. This statement reinforces that curriculum development is not merely an administrative activity, but an academic process that requires careful planning and a systematic approach so that learning can take place effectively and meaningfully.

In Islamic education, the formulation of curriculum objectives is directed toward achieving Graduate Learning Outcomes (Capaian Pembelajaran Lulusan/CPL), which include aspects of attitudes, knowledge, general skills, and specific skills. CPL is designed based on the Indonesian National Qualifications Framework (Kerangka Kualifikasi Nasional Indonesia/KKNI) and National Higher Education Standards as references for graduate quality. Ralph Tyler emphasized that educational objectives are the starting point in curriculum development, while Hilda Taba explained that objectives must be concretely formulated and measurable to facilitate implementation in learning. These objectives become the primary foundation for improving the quality of learning in Islamic educational institutions.



In addition to objectives, the formulation of curriculum content or materials also significantly contributes to the quality of learning. Learning materials must be relevant to curriculum objectives, possess scientific validity, and align with the needs and development of students. In Islamic educational institutions, scientific materials are required to be arranged integratively between religious and general sciences so that students gain a holistic understanding. Poorly organized materials may lead to discrepancies between the formulated objectives and the achieved learning outcomes, resulting in suboptimal learning quality.

Learning strategies are important components that bridge curriculum objectives and materials with student learning outcomes. Constructivist learning approaches, problem-based learning, case-based learning, and project-based learning are considered relevant for implementation in contemporary Islamic education because they encourage students' activeness, independence, and critical thinking skills. Learning strategies that are not aligned with curriculum objectives and materials may hinder the achievement of the expected learning quality.

The evaluation component of learning outcomes functions as a tool for measuring the achievement of learning objectives as well as a means of reflection and continuous curriculum improvement. Evaluation in Islamic education is not only oriented toward cognitive aspects but also includes affective and psychomotor aspects, including students' religious attitudes and academic ethics. A comprehensively designed evaluation enables Islamic educational institutions to ensure sustainable learning quality.

Nevertheless, the formulation of curriculum components in Islamic educational institutions still faces various challenges, such as the mismatch between CPL and learning content, weak integration of the Merdeka Belajar–Kampus Merdeka policy, gaps between graduate competencies and labor market needs, as well as limited educators' understanding of curriculum design. These conditions indicate that curriculum development has not yet been fully positioned as a strategic foundation for improving learning quality.



Based on the above explanation, this study is important to conduct in order to examine comprehensively the formulation of curriculum components as a foundation for improving the quality of learning in Islamic educational institutions. This study is expected to provide theoretical and practical contributions to the development of curricula that are relevant, coherent, and oriented toward producing graduates who are competent, adaptive, and possess Islamic morals.

A. RESEARCH METHOD

This study employs a qualitative approach with a library research design. Library research was chosen because the purpose of this study is to examine comprehensively the concepts, principles, and urgency of developing curriculum components as a foundation for improving the quality of learning in Islamic educational institutions based on various relevant scientific sources.

The data sources in this study consist of primary and secondary data. The primary data include major reference books discussing curriculum, curriculum development, and Islamic education, while the secondary data consist of scientific journal articles, previous research findings, laws and regulations related to educational curriculum, and official documents relevant to the context of Islamic education. All sources were selected selectively by considering their relevance, credibility, and the novelty of the information.

B. RESULTS AND DISCUSSION

1. Definition of Curriculum Component Development

Curriculum components are fundamental elements that build the overall structure of a curriculum in the implementation of education. These components include the formulation of learning objectives, the determination of learning materials or content, the organization of learning processes and strategies, as well as the implementation of evaluation (Nasir & Hasanah, 2022). Each component has an interconnected function and cannot be separated from one another, because the success of a curriculum is largely determined by the integration among its elements. Learning objectives serve as the starting point that directs the selection of materials, learning strategies determine the methods for achieving the objectives, while evaluation functions to assess the extent to



which these objectives have been achieved.

In practice, the development of curriculum components cannot be carried out partially, but requires a systematic and well-planned approach. The integration among components is the main prerequisite for the curriculum to function effectively as a guide for learning. In line with the views of Allan C. Ornstein and Francis P. Hunkins, alignment between objectives, learning content, methods, and assessment is an important aspect of curriculum design, because inconsistency among components may cause the learning process to proceed without clear direction and make it difficult to achieve the expected learning outcomes (Khasanah, 2018).

Furthermore, the development of curriculum components must also consider the context and needs of students as well as the characteristics of educational institutions, especially Islamic educational institutions. The curriculum is not only oriented toward mastery of academic materials, but is also directed toward the formation of students' values, attitudes, and character. Therefore, each curriculum component needs to be designed synergistically in order to support the achievement of educational goals comprehensively, covering aspects of knowledge, skills, and attitudes. The development of integrated and contextual curriculum components thus becomes an important foundation in efforts to continuously improve the quality of learning.

2. Main Components of the Curriculum

The main components of the curriculum consist of educational objectives, learning content or subject materials, and learning strategies that are interrelated in shaping the direction and implementation of the educational process. Educational objectives represent the goals to be achieved through learning activities and become the basis for all curriculum planning. These objectives are formulated in the form of Graduate Learning Outcomes (Capaian Pembelajaran Lulusan/CPL), which describe the ideal competencies expected to be possessed by students after completing a certain level of education (Ridho, 2018). The formulation of clear and measurable objectives is an important foundation so that the learning process can be directed systematically and result-oriented.

Learning content or subject materials constitute the substance of learning arranged to support the achievement of educational objectives. The materials not only contain factual knowledge, but



also include concepts, principles, and values that are relevant to students' needs and the educational context. The selection and organization of materials must be carried out selectively and continuously so that they align with the predetermined learning outcomes while also encouraging the optimal development of students' potential.

Learning strategies function as a bridge between educational objectives and learning materials with the expected learning outcomes. These strategies include the approaches, methods, and techniques used by teachers in delivering materials to students. The selection of appropriate learning strategies will determine the effectiveness of the learning process, because suitable strategies are capable of creating an active, meaningful, and student-centered learning environment (Budiono et al., 2021).

Therefore, the integration between educational objectives, learning content, and learning strategies becomes a key factor in realizing an effective and high-quality curriculum. Educational objectives in the curriculum are formulated in the form of Graduate Learning Outcomes (Capaian Pembelajaran Lulusan/CPL), which represent the final competencies that students are expected to possess after completing a certain level of education. The formulation of CPL is developed based on the Indonesian National Qualifications Framework (Kerangka Kualifikasi Nasional Indonesia/KKNI) and the National Standards for Higher Education (Standar Nasional Pendidikan Tinggi/SN Dikti) as an effort to ensure alignment between learning outcomes, educational needs, and societal demands. Through CPL, the direction of learning becomes clearer, measurable, and systematic, enabling it to serve as a guideline for the preparation of learning materials, learning strategies, and evaluation (E. C. Sari, 2022).

Furthermore, educational objectives formulated in CPL must reflect the integration of various competency aspects, including attitudes, knowledge, general skills, and specific skills. These four aspects illustrate holistic learning outcomes that are not only oriented toward mastery of knowledge, but also toward the formation of students' character and practical abilities. Thus, educational objectives do not merely emphasize cognitive aspects, but also integrate affective and psychomotor dimensions as part of the overall student development process.



Theoretically, the formulation of educational objectives is in line with the views of Ralph Tyler, who stated that educational objectives should be developed based on students' needs and societal demands. Meanwhile, Hilda Taba emphasized that educational objectives need to be formulated concretely and measurably in order to facilitate the learning evaluation process (E. C. Sari, 2022). These perspectives affirm that educational objectives must be relevant, realistic, and operational so that they can become a strong foundation for the preparation and implementation of effective curricula oriented toward improving the quality of learning.

1. Learning Content or Subject Materials

Learning content or subject materials constitute an important component of the curriculum that functions as a means of achieving the educational objectives formulated in the Graduate Learning Outcomes (Capaian Pembelajaran Lulusan/CPL) (Anis Aprianti & Siti Tiara Maulia, 2023). Therefore, learning materials must have clear relevance to the objectives to be achieved. Each material presented needs to be organized systematically and proportionally in order to support the achievement of the expected competencies, so that the learning process does not proceed sporadically but remains focused on the predetermined learning outcomes.

In addition to relevance to objectives, subject materials must also possess scientific validity. The materials taught to students need to be based on academically tested concepts, theories, and findings derived from accountable references. Scientific validity is important to ensure the accuracy and correctness of learning substance, while also preventing the delivery of inaccurate information or content inconsistent with scientific developments.

Furthermore, the development of subject materials must consider the interests and needs of students. Materials that are relevant to students' learning experiences, interests, and academic needs will be easier to understand and more meaningful. In addition, learning materials also need to be adjusted to the psychological developmental stages of students. This adjustment aims to ensure that the complexity level of the material aligns with students' thinking abilities and learning readiness, so that the learning process can take place effectively, enjoyably, and support the optimal development of students' potential.



3. Learning Strategies or Learning Process

Learning strategies or the learning process are curriculum components that play an important role in bridging learning objectives with learning materials in order to achieve the expected learning outcomes. In the context of modern education, learning strategies are directed toward approaches that position students as active subjects in the learning process. The constructivist approach emphasizes that knowledge is not merely transferred from educators to learners, but is actively constructed through learning experiences, interaction, and reflection (Setiyorini & Setiawan, 2023). Through this approach, students are encouraged to connect new knowledge with their prior understanding so that learning becomes more meaningful.

One strategy aligned with the constructivist approach is problem-based learning, which is learning centered on solving real-world problems. In this strategy, students are confronted with contextual problems that require critical, analytical, and collaborative thinking skills. The learning process is not only focused on finding answers, but also on developing reasoning skills, identifying problems, and formulating solutions systematically. Thus, learning does not stop at conceptual mastery, but also trains students to apply knowledge in real-life situations (Setiyorini & Setiawan, 2023).

In addition, case-based learning and project-based learning are also relevant learning strategies in supporting the achievement of curriculum objectives. Case-based learning emphasizes the use of case studies as a means to analyze particular phenomena or events in depth, enabling students to develop decision-making skills based on available data and context. Meanwhile, project-based learning directs students to produce products or works through a series of planned activities, starting from planning, implementation, and evaluation.

This strategy not only enhances conceptual understanding, but also develops cooperation skills, independence, and responsibility in learning. The proportional implementation of these various learning strategies is expected to create an active, contextual, and learning-outcome-oriented educational process aimed at improving the quality of learning outcomes (Cindy E. Hmelo-Silver, 2004).

4 . Evaluation of Learning Outcomes



Evaluation of learning outcomes is an integral part of the learning process that functions to assess the level of achievement of predetermined educational objectives. One commonly used form of evaluation is the final examination, which serves as a summative assessment to measure the final learning achievements after all materials have been delivered. Through final examinations, educators can obtain a comprehensive overview of students' mastery of knowledge and understanding of the learning materials, while also using it as a basis for determining the success of the learning process that has taken place.

In addition to final examinations, evaluation of learning outcomes can also be conducted through peer assessment or student-to-student assessment. This form of evaluation provides students with the opportunity to assess the performance and contributions of their peers in the learning process, particularly in collaborative activities. Peer assessment functions not only as an assessment tool, but also as a means of fostering responsibility, openness, and the ability to provide constructive feedback (Nurwiati, 2022). By combining summative evaluation and collaborative assessment, the process of evaluating learning outcomes becomes more comprehensive and capable of reflecting the overall development of students' competencies.

The use of various forms of evaluation, both final examinations and peer assessment, provides a more comprehensive picture of students' development. The combination of these two forms of evaluation enables educators to assess cognitive, attitudinal, and skill aspects more proportionally. Therefore, learning outcome evaluations that are designed in an integrated and contextual manner will support the improvement of learning quality and help students achieve the expected competencies optimally.

5. Supporting Components of the Curriculum

Supporting curriculum components play an important role in ensuring that the curriculum is implemented in a directed and consistent manner. One of these components is the graduate profile, which contains statements regarding the main competencies expected to be possessed by graduates after completing the educational process. The graduate profile functions as an ideal description of graduate competencies, covering aspects of knowledge, skills, and attitudes, and therefore becomes a reference in designing all learning elements within the curriculum (Khaldun, 2020).



In addition to the graduate profile, the learning outcome mapping is a supporting component that helps describe the distribution of Graduate Learning Outcomes (Capaian Pembelajaran Lulusan/CPL) into courses arranged within the curriculum structure. This mapping demonstrates the relationship between each course and the CPL to be achieved, so that the learning process can be designed gradually and continuously. Through learning outcome mapping, educational institutions can ensure that all CPLs are achieved proportionally and that there is no overlap or absence of competencies in curriculum implementation (John Biggs & Catherine Tang, 2011).

Another supporting component is the Semester Learning Plan (Rencana Pembelajaran Semester/RPS), which is an operational document for course implementation. The RPS contains detailed learning plans, including learning objectives, materials, methods, assessments, and learning resources used throughout one semester. This document serves as a guideline for lecturers and students in carrying out the learning process systematically and measurably. With the support of well-structured graduate profiles, learning outcome mappings, and Semester Learning Plans (RPS), the curriculum can be implemented effectively and contribute to the continuous improvement of learning quality.

6. Merdeka Belajar–Kampus Merdeka Curriculum

The Merdeka Belajar–Kampus Merdeka (MBKM) Curriculum is a higher education policy in Indonesia designed to provide students with more flexible learning opportunities. In the curriculum context, MBKM is positioned as an additional component that complements the study program curriculum structure by opening opportunities for learning beyond conventional lecture-based schemes (Nurwiati, 2022). Through this policy, students are not limited solely to learning within their study programs, but are given opportunities to develop broader competencies according to their interests, talents, and future needs.

In its implementation, MBKM allows students to take courses or participate in various learning activities outside their study programs, even outside their home universities. These activities may include student exchanges, internships, teaching assistance, research, social projects, and entrepreneurial activities. Such learning experiences are expected to broaden students' perspectives, improve practical skills, and strengthen their readiness to face the workforce and continuously



evolving social dynamics.

Nevertheless, the implementation of MBKM within the curriculum still faces several challenges. One of the main challenges is the weak integration of MBKM programs into the existing curriculum structure. This condition is often caused by insufficient planning, limited coordination, and a lack of collaboration among study programs and institutions. Therefore, more systematic curriculum planning, adjustment of learning outcomes, and sustainable cooperation between higher education institutions and external partners are needed so that MBKM implementation can run optimally and align with the objectives of higher education (Suryaman, 2021).

7. Principles of Curriculum Component Development

The principles of curriculum component development constitute an important foundation in ensuring that the curriculum can function effectively as a guide for learning. One of the main principles is coherence, namely the alignment and interconnection among curriculum components such as objectives, materials, learning strategies, and evaluation. Coherence ensures that each component supports one another in achieving the predetermined educational objectives, so that the learning process does not proceed separately or without clear direction.

The principle of relevance requires that the curriculum be developed in accordance with contemporary needs, scientific developments, and societal demands. A relevant curriculum will be able to bridge the gap between the educational world and social realities, so that learning outcomes possess practical value for students in real life. In addition, the curriculum must also be flexible, meaning open to change and innovation (Jenderal et al., 2020). Flexibility enables the curriculum to adapt to technological developments, educational policies, and the dynamic needs of students without losing its fundamental objectives.

The principle of comprehensiveness emphasizes that the curriculum must encompass all expected competencies, including aspects of attitudes, knowledge, and skills. These three aspects need to be integrated in a balanced manner so that learning is not only oriented toward academic achievement, but also toward character building and the development of students' practical abilities. Furthermore, the curriculum should be student-oriented by positioning learners as the primary



subjects in the learning process. This approach highlights the importance of considering students' needs, potential, and learning styles, so that the curriculum can encourage active participation and optimize the development of students' potential.

8. Curriculum Development Models

Curriculum development models are conceptual frameworks used to design, develop, and evaluate curricula systematically. One widely referenced model is the Ralph Tyler model introduced in 1949 (Ramadan et al., 2025). This model is goal-oriented, placing the formulation of educational objectives as the initial step in curriculum development. Through this approach, all curriculum components, ranging from material selection and learning strategies to evaluation, are arranged based on predetermined objectives. The Tyler model provides the foundation for various modern curriculum approaches because it emphasizes the integration between objectives and learning outcomes.

In addition, the Hilda Taba model developed in 1962 offers a different approach by emphasizing the role of teachers as curriculum developers. This model is bottom-up in nature, where educators are directly involved in the curriculum planning and development process based on practical experiences and actual needs in the field (Ramadan et al., 2025). This approach views teachers as practitioners who understand students' characteristics and learning contexts, resulting in curricula that are more contextual and responsive to learning needs.

Meanwhile, the Outcome-Based Education (OBE) model places learning outcomes or achievements as the main focus in curriculum development. In this model, the entire curriculum design is structured by making Graduate Learning Outcomes (Capaian Pembelajaran Lulusan/CPL) the starting point. The OBE model has been widely adopted in higher education today because it is considered capable of ensuring measurable graduate competencies that are relevant to workforce demands. By emphasizing learning outputs, the OBE model encourages curriculum planning that is more directed, systematic, and oriented toward the quality of learning outcomes.

9. Challenges in Curriculum Development

In practice, the development of curriculum components still faces various challenges that



affect the effectiveness of implementation. One challenge that frequently arises is the mismatch between Graduate Learning Outcomes (Capaian Pembelajaran Lulusan/CPL) and the content of the courses being taught. This condition causes the educational objectives that have been formulated not to be implemented optimally in the learning process, because the materials and learning activities have not fully directed students toward achieving the expected competencies (Kurikulum et al., 2022).

Another challenge relates to the integration of the Merdeka Belajar–Kampus Merdeka (MBKM) program into the curriculum structure. Weak planning and insufficient curriculum adjustment to MBKM policies often result in partial and less effective implementation. Consequently, the potential of MBKM to enrich students' learning experiences and improve practical competencies has not been utilized optimally.

In addition, there is still a gap between the competencies of graduates produced and the needs of the workforce. This indicates that the curriculum has not been fully responsive to professional demands and labor market developments. A less adaptive curriculum risks producing graduates who possess theoretical mastery but lack the practical skills required in the workplace (Nurwiatin, 2022). This condition demands periodic curriculum review and adjustment to maintain relevance.

Another factor influencing the challenges in developing curriculum components is the limited training of lecturers in the field of curriculum design and development. The lack of training causes lecturers' understanding of curriculum concepts and implementation to vary, resulting in inconsistencies in the implementation of learning processes. Therefore, improving lecturers' capacities through continuous training becomes a strategic step in supporting more effective and high-quality curriculum development and implementation.

10. Case Study: Arabic Language Education Curriculum

A case study on curriculum development in the Arabic Language Education Program demonstrates how curriculum components are systematically designed and oriented toward the graduate profile. The graduate profile is directed toward producing professional Arabic language educators, developers of learning media, and researchers in the field of Arabic language and



literature. This profile becomes the primary reference in formulating the direction of the curriculum, so that graduate competencies are not only limited to language mastery, but also include pedagogical abilities, learning technology, and research skills (Aisyah & Hasan, 2024).

Based on this graduate profile, Graduate Learning Outcomes (Capaian Pembelajaran Lulusan/CPL) are formulated to ensure mastery of Arabic linguistic theories, the ability to design technology-based learning, and research skills, particularly in analyzing language errors. These CPLs are then distributed gradually into the curriculum structure so that the learning process takes place continuously (Utami, 2020). In the early semesters, learning focuses on strengthening scientific foundations, followed by linguistic applications in the middle semesters, and the development of Arabic language teaching methods in subsequent semesters. At the final stage, students are directed toward internships and thesis writing as a form of integration between theory and practice.

Learning evaluation in the Arabic Language Education curriculum is designed to assess competency achievement comprehensively. Evaluation methods are not limited to theoretical examinations, but also include digital learning development projects and classroom action research. Through these varied forms of evaluation, students' learning achievements can be measured more comprehensively, covering aspects of knowledge, skills, and practical application abilities. With a structured and integrated curriculum design, graduates of Arabic Language Education are expected to possess relevant competencies and be ready to contribute to the educational field as well as the development of Arabic language scholarship.

11. Scientific Foundations in the Distribution of Graduate Learning Outcomes (CPL)

Scientific foundations in the distribution of Graduate Learning Outcomes (Capaian Pembelajaran Lulusan/CPL) constitute the initial stage that functions to build students' academic foundations before entering more applicative phases of learning. In the domain of knowledge, learning outcomes are directed so that students are able to explain and understand the fundamental concepts of academic disciplines, such as linguistic theory and philosophy of science. Mastery of these basic concepts becomes an important provision for students to understand scientific developments critically and systematically (Aisyah & Hasan, 2024). Courses such as Introduction to



Educational Science and Philosophy of Science are designed to strengthen this conceptual understanding as a foundation for advanced learning.

In addition to knowledge, the domain of general skills also becomes an important part of the scientific foundation phase. At this stage, students are expected to be able to use scientific methods to solve simple problems, such as formulating problems, constructing conceptual frameworks, and analyzing basic data (I. V. Y. Sari et al., 2023). Courses such as Basic Research Methodology and Descriptive Statistics play a role in equipping students with logical, analytical, and systematic thinking skills required in academic activities and future research stages.

The attitude domain complements the scientific foundation by emphasizing the development of students' academic character. Learning outcomes in this aspect are directed toward the ability to demonstrate academic ethics, responsibility, and curiosity in the learning process. These values are instilled through courses such as Pancasila and Civic Education and Professional Ethics, which aim to shape students' academic and moral attitudes as intellectual individuals. Through the integration of knowledge, general skills, and attitudes, the scientific foundation phase becomes a strong basis for achieving students' competencies in subsequent learning stages.

12. The Role of Scientific Foundations in the Distribution of Graduate Learning Outcomes (CPL)

Scientific foundations play a strategic role in the distribution of Graduate Learning Outcomes (CPL) because they serve as the basis for developing students' competencies in subsequent stages. One of their primary roles is maintaining vertical coherence within the curriculum structure, where learning outcomes in the early semesters are designed as logical prerequisites for advanced learning outcomes that are analytical, applicative, and innovative in nature (Nurwiatin, 2022). Through this pattern, the learning process becomes continuous and structured, allowing students to develop competencies gradually without experiencing conceptual gaps that could hinder understanding. In addition, scientific foundations also contribute to the placement of competencies according to levels of cognitive taxonomy. In the initial stages, students are directed to master abilities at the levels of remembering, understanding, and applying before progressing to higher-order skills such as



analyzing, evaluating, and creating. This gradual approach enables the development of stronger and more systematic thinking skills, as each level of competency is built upon mastery of previous competencies.

From the perspective of alignment with the Indonesian National Qualifications Framework (KKNI), scientific foundations ensure that graduates at a particular qualification level have comprehensively mastered conceptual knowledge before being required to demonstrate specialized skills (Jenderal et al., 2020). Strong conceptual mastery becomes an essential prerequisite so that the skills developed are not merely mechanical but are grounded in deep understanding. Thus, graduate learning outcomes can remain aligned with established national qualification standards.

Furthermore, scientific foundations function as a means of mitigating disparities in students' academic backgrounds, especially in interdisciplinary study programs. Through strengthening foundational knowledge at the early stage, all students are provided equal opportunities to build equivalent basic knowledge. This is important to ensure that subsequent learning processes can be followed optimally by all students without significant differences in foundational understanding.

13. Principles for Designing Foundational Scientific Courses

The preparation of foundational scientific courses should adhere to the principle of disciplinary relevance so that the material presented provides scientific context according to the field of study while also being interdisciplinary in nature. This approach enables students to acquire comprehensive foundational knowledge through mastery of fundamental concepts such as logic, research methodology, and scientific reasoning (Mikraj et al., 2024). With this interdisciplinary character, foundational courses not only strengthen the scientific identity of the study program but also broaden students' academic perspectives as preparation for understanding multidimensional problems.

In addition, the principles of spiral learning and scaffolding are important in designing foundational scientific courses. Basic concepts are introduced briefly at the initial stage and then deepened and expanded in subsequent blocks or courses. This gradual approach helps students build understanding continuously because each new piece of knowledge is linked to prior knowledge. In



this way, the learning process becomes more structured and supports the progressive development of students' thinking abilities.

The principle of authentic learning should also be integrated into foundational scientific courses through assignments based on real-world problems on a simple scale. This approach encourages students to recognize the usefulness of knowledge from the beginning of their studies and to understand the relationship between theoretical concepts and real-life situations (Mikraj et al., 2024). Through contextual learning experiences, students not only understand concepts theoretically but are also able to relate them to practical situations.

Furthermore, foundational scientific courses should be designed to develop transferable skills that are interdisciplinary in nature, such as critical thinking, collaboration, and digital literacy. These competencies are included in the National Higher Education Standards and serve as important provisions for students to adapt in various academic and professional contexts. By integrating these skills into foundational scientific courses, the curriculum not only builds academic foundations but also prepares students to face challenges in the workplace and the dynamic development of science and technology.

14. Mapping CPL to Scientific Foundations

The mapping of Graduate Learning Outcomes (CPL) into foundational scientific courses is carried out to ensure that students' basic competencies are systematically instilled from the beginning of their studies.

In the knowledge domain with CPL code K-1, students are directed to understand the basic theories of Arabic phonology, morphology, and syntax. This competency is primarily introduced in the first semester as the scientific foundation of Arabic linguistics (Aisyah & Hasan, 2024). Evidence of learning achievement at this stage is demonstrated through essay examinations and online quizzes designed to measure students' conceptual understanding in depth.

Next, in the general skills domain with CPL code KU-2, students are expected to be able to design simple research proposals using scientific methods. This competency begins to be developed in the second semester as reinforcement for scientific and analytical thinking skills. Achievement of



this CPL is evidenced through the preparation of research proposals in the form of mini research projects, which train students to formulate problems, construct theoretical frameworks, and determine research methods systematically (Aisyah & Hasan, 2024). This process serves as an important foundation for the development of research skills in subsequent learning stages.

In the attitude domain with CPL code S-1, students are expected to demonstrate integrity and academic ethics in all lecture activities. The cultivation of this attitudinal competency is carried out continuously from the first semester and reinforced across various courses. Evidence of academic attitude achievement can be observed through reflection portfolios, attendance logs, and students' involvement in the learning process. In addition, the strengthening of advanced general skills, such as the ability to use basic data processing applications with CPL code KU-3, becomes part of the scientific foundation to support academic and research activities. With a clear and structured CPL mapping, foundational scientific courses function as the main foundation in building students' competencies gradually and continuously.

15. Indicators of Success in the Scientific Foundation Phase

Indicators of success in the scientific foundation phase are formulated to assess the extent to which the learning process in the early stage of higher education effectively builds students' academic foundations. One of the main indicators is course achievement, where at least 80% of students are expected to obtain good grades in foundational courses. This achievement indicates that most students have mastered the scientific basics required to participate in subsequent learning stages and reflects the effectiveness of learning planning and implementation in the initial phase (Nurwiatin, 2022).

In addition to academic achievement, student retention rates in the first year are also important indicators in assessing the success of the scientific foundation phase. A retention rate of at least 90% indicates that students are able to adapt academically to the university environment and existing learning demands. High retention can also indicate alignment between curriculum design and students' academic readiness, thereby minimizing the risk of dropout in the early stages.

Another indicator relates to the quality of learning planning reflected in Semester Learning Plan



(RPS) audits. All RPS documents and assessment rubrics are expected to demonstrate clear coherence between learning outcomes, materials, and assessments and to pass internal quality assurance processes (Ulin Nuha & Faedurrohman, 2022). This audit functions to ensure that learning is implemented according to established quality standards and supports the optimal achievement of student competencies. With the fulfillment of these three indicators, the scientific foundation phase can be considered successful in building a strong academic foundation for students.

16. Challenges and Solutions in Scientific Foundations

The scientific foundation phase in curriculum development is inseparable from various challenges that must be anticipated strategically. One major challenge is the heterogeneity of students' academic backgrounds, which causes disparities in cognitive abilities at the beginning of higher education. These differences can potentially hinder the learning process if not managed properly. In addition, foundational scientific materials are often perceived by students as overly theoretical, which may reduce learning motivation. Another challenge is the accumulation of study loads due to conflicts between foundational courses and the implementation of the Merdeka Belajar–Kampus Merdeka (MBKM) program, which can affect learning effectiveness (Nasir & Muhammad, 2024).

To address these challenges, various adaptive and contextual solutions are required. Online matriculation programs can be implemented to equalize students' basic competencies before participating in regular lectures. In addition, the application of real case-based learning projects and the development of micro-credentials can increase students' learning motivation by demonstrating the practical relevance of foundational scientific materials (Khasanah, 2018). Integrating general courses into microcourse packages can also serve as a solution to streamline credit loads (SKS) without reducing learning quality.

As a practical recommendation, the development of a scientific foundation curriculum should be carried out through reverse-engineered mapping, beginning with graduate profiles, then derived into Graduate Learning Outcomes (CPL), and finally formulated into foundational modules. Furthermore, a proportional credit distribution blueprint is needed, allocating approximately 20–25%



of the curriculum load to foundational scientific courses. Curriculum evaluation should also be conducted periodically through annual tracer studies to ensure the relevance and sustainability of learning (Ramadan et al., 2025). Moreover, integrating artificial intelligence literacy and data analysis as new components within scientific foundations becomes a strategic step in preparing students to face developments in science and professional demands in the digital era.

C. CONCLUSION

The preparation of curriculum components is a strategic process that requires systematic, integrative, and outcome-oriented planning based on graduate learning achievements. A curriculum functions not merely as an academic document, but as a framework that directs the entire learning process to align with institutional vision, scientific development, and societal needs. Therefore, the integration of educational objectives, learning content, learning strategies, and evaluation becomes a fundamental prerequisite for creating an effective and high-quality curriculum.

The scientific foundation phase plays a crucial role in the curriculum structure because it serves as the basis for the development of students' competencies in subsequent stages of learning. Scientific foundations ensure that students possess adequate knowledge, scientific thinking skills, and academic ethics before entering more applicative and innovative learning phases. Through a well-planned and continuous distribution of Graduate Learning Outcomes (CPL), the learning process can proceed gradually and measurably in accordance with national qualification standards.

Thus, the success of curriculum development is highly determined by the strength of curriculum component design and the quality of the scientific foundation phase. A curriculum designed in a participatory, adaptive, and contextual manner will be able to produce graduates who are competent, adaptable to change, and possess academic as well as professional integrity. This conclusion emphasizes that strengthening curriculum components, particularly within the scientific foundation phase, constitutes a long-term investment in improving educational quality and graduate competitiveness.



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