

# *Research and Practice of Curriculum Intrinsic Value Development Method Based on OBE Concept*

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**Abstract:** This study applies the teaching philosophy of Outcome-Based Education (OBE) to a curriculum, enhancing its educational value through the strategic design of teaching modes, construction of teaching resources, and formulation of teaching evaluations. The effectiveness of these objectives is assessed by observing student learning outcomes. The process primarily involves a reverse curriculum design, beginning with the demands of the information technology industry. This leads to the determination of professional training objectives based on these demands. Subsequently, graduation requirements are established in alignment with these training objectives. These graduation requirements then inform the curriculum system and curriculum objectives. The curriculum content and teaching methods are determined based on these curriculum objectives, facilitating the development of teaching resources, designing evaluation methods, creating a syllabus for the curriculum, and ultimately implementing it in classroom settings. The learning outcomes are then evaluated, tracking the effectiveness of teaching strategies and continuously refining the curriculum design. By integrating professional knowledge closely with ideological and political education content within the curriculum, this approach fosters emotional engagement in the curriculum, subtly enhancing students' motivation to learn. It also promotes the establishment of accurate concepts while acquiring professional knowledge.

## **1. Introduction**

The Outcomes-Based Education (OBE) concept, also referred to as the results-oriented education paradigm, was initially introduced by Spady et al. and has since evolved into a comprehensive theoretical framework. This framework is now widely adopted by numerous countries as their primary strategy for ensuring quality education and fostering innovative talent development. The OBE approach emphasizes the need for curriculum design that adopts a reverse thinking process, with learning outcomes serving as the focal point and students at the heart of the educational process. It places greater emphasis on defining student learning outcomes, determining methods to achieve these outcomes, and conducting rigorous evaluations of the actual outcomes achieved.

The concept of OBE has garnered significant attention in various domains, including language instruction, computer technology education, industrial engineering, and medical training. Luguay<sup>[1]</sup> developed an automated evaluation procedure tailored for the integration of OBE into the Industrial Engineering Department at the University of São Paulo's Faculty of Engineering. This research offers valuable insights for teaching evaluations in analogous fields and delineates potential avenues for enhancing the automated evaluation process. Xu<sup>[2]</sup> investigated strategies to reform macroeconomics instruction using the OBE framework, with a focus on nurturing students' capacity to address real-world economic challenges. By refining curriculum content and instructional techniques, students' critical thinking and practical skills were fortified. The revised teaching approach bolstered students' academic enthusiasm and their capability in economic analysis, thereby establishing a robust foundation for their professional endeavors. Liu<sup>[3]</sup> initiated a pedagogical transformation for the new media data analysis curriculum, grounded in the OBE paradigm, to foster students' data-driven decision-making competencies. Key reform measures encompassed updating curriculum material, incorporating case studies, and assigning practice projects to augment students' hands-on operational skills. Yang<sup>[4]</sup> integrated creativity component theory with OBE concepts to devise innovative practice workshops for novice nurses. This was achieved through training in creative thinking and practical operations, with the objective of enhancing new nurses' clinical decision-making and nursing innovation capabilities. The curriculum content encompassed nursing knowledge, skill training, and situation simulations to ensure that the newly trained nurses could attain the predetermined educational outcomes. Emphasis was placed on teamwork and reflection during practice sessions, facilitating the application of learned skills in real-world scenarios. In terms of intrinsic value development within the curriculum, Blessing<sup>[5]</sup> introduced the concept of an information maximization curriculum. This approach aims to foster students' multifaceted skills through curriculum design, maximizing the volume of information acquired throughout the learning process to enable mastery of a broader range of flexible skills. The paper delves into the principles, design methodologies, and implementation processes of the information maximization curriculum, underscoring its positive impact on students' holistic development. This research offers a novel curriculum design concept for education, equipping students with a more comprehensive education and skill set. Pak<sup>[6]</sup> examined adaptive challenges in curriculum implementation and offered insights into educational leaders advocating for standard-based reform. The study summarized common adaptive challenges faced during curriculum reform, such as teacher training, resource allocation, and policy changes. The findings underscore essential competencies and strategies that educational leaders must possess when addressing these challenges, including system thinking and effective communication and collaboration skills.

Numerous challenges persist in the realm of engineering education accreditation. These encompass the integration of outcome-oriented mechanisms into the curriculum, addressing the fundamental issues related to evaluation mechanisms that are driven by output results to assess the knowledge value acquisition within the curriculum. Additionally, there is a need to bolster moral education and stimulate learning motivation, while fully leveraging the emotional value inherent in the curriculum. This paper addresses the integration of ideological and political elements within the curriculum, focusing on enhancing the emotional value of the curriculum. This is achieved through an examination of the output-oriented reverse design cycle, the output-oriented student-centered forward implementation cycle, and the output-oriented teaching evaluation and continuous improvement processes.

## 2. Methods for the Development of Curriculum Intrinsic Value

### 2.1. Design Level: Output-Oriented Backward Design

The output-oriented backward design is an educational model that prioritizes the establishment of desired learning outcomes, subsequently designing pedagogical activities and curriculum content to facilitate student achievement. This cyclical process encompasses four phases: "Plan," where objectives are delineated and strategies formulated; "Do," wherein teaching plans and curriculum designs are executed; "Check," which involves assessing and offering feedback on students' performance to ascertain the attainment of predetermined goals; and "Act," which necessitates modifications and enhancements to teaching plans and curriculum designs based on evaluation findings. The overarching objective of this iterative framework is to consistently align teaching endeavors with the enhancement of students' competencies and knowledge, thereby fostering the development of high-caliber talents tailored to societal and industrial demands. Within the realm of higher education, enhancing educational quality consistently remains a central concern. This is primarily achieved through the establishment of graduation requirements, which are determined by training objectives and subsequently informed by professional quality standards and training programs. These requirements form the bedrock of the guarantee system for educational quality. Training objectives serve as the initial point of educational activities, directly influencing the formulation of graduation requirements. Conversely, graduation requirements act as specific benchmarks to gauge whether students have successfully met their professional training objectives. Building on this foundation, graduation requirements guide the development of curriculum teaching objectives. Curriculum teaching objectives serve as a crucial mechanism for achieving professional training goals, outlining the knowledge, skills, and attitudes students should acquire within each curriculum. The formulation of these objectives must be closely aligned with graduation requirements to ensure that curriculum activities effectively facilitate students' attainment of these requirements and subsequent professional training objectives. Furthermore, these objectives guide the design of the curriculum teaching process, which is a critical link in achieving these objectives. This process encompasses elements such as teaching content, methods, means, and evaluation. In designing this process, educators must base their decisions on curriculum teaching objectives, selecting appropriate teaching content and methods, utilizing suitable teaching means, and designing effective teaching evaluations. This ensures that curriculum teaching activities proceed smoothly and achieve the desired teaching goals. Output-oriented teaching and learning is a significant concept in the current educational field, emphasizing student-centeredness and learning outcome orientation. It involves designing and implementing effective teaching activities and learning processes to assist students in acquiring expected knowledge, skills, and attitudes. In output-oriented teaching and learning, the establishment and implementation of curriculum objectives are vital. Only when curriculum objectives can support professional graduation requirements and clarify students' learning outputs can we guarantee the effectiveness and relevance of teaching activities. Concurrently, it is also essential to conduct teaching design argumentation for curriculums. By articulating curriculum objectives and anticipated learning outcomes, designing learning tasks and activities, and establishing methods for evaluating learning effects, we can develop scientifically sound and rational "curriculum standards." These standards enable students to clearly understand their training goals and the outcomes of their curriculumwork, as illustrated in Figure 1. This approach to teaching and learning enhances students' enthusiasm and autonomy, fostering their holistic development.

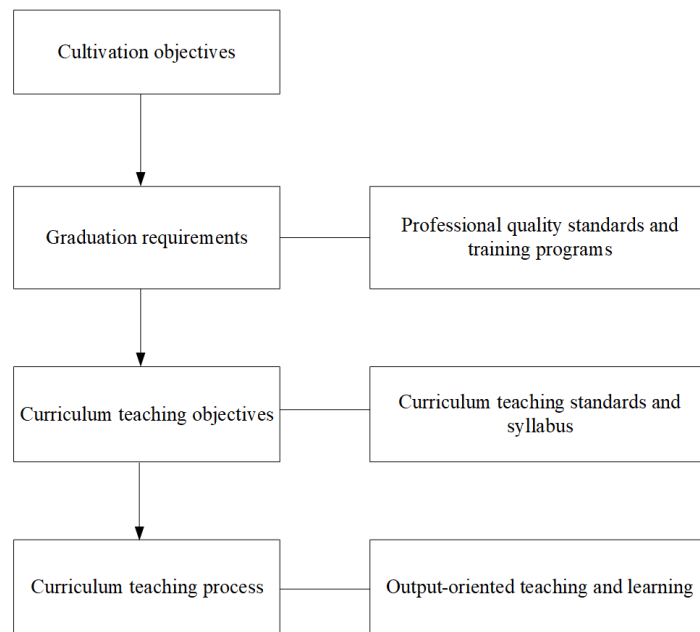


Figure 1: Reverse design process for output-oriented.

## 2.2. Implementation Level: Student-Centered Positive Implementation for Outputs

Classroom instruction, the primary locus of educational activity, fundamentally hinges on a two-way effective interaction between educators and students. In conventional teaching paradigms, teachers predominantly function as knowledge transmitters, while students serve as recipients of this knowledge. However, with the ongoing evolution of educational philosophies, there has been an increasing appreciation for student-centered pedagogical approaches. The Outcome-Based Education (OBE) concept epitomizes this shift, underscoring a student-centric approach to achieving curriculum objectives through teacher guidance and active student engagement. Within the OBE framework, students transition from passive knowledge receivers to active promoters of learning motivation, content constructors, and method explorers. They actively engage in classroom activities, contemplate problems proactively, and seek solutions with enthusiasm, thereby authentically realizing a two-way effective interaction in classroom instruction. Concurrently, the role of teachers evolves; they are no longer confined to mere knowledge dissemination but assume roles as guides, participants, and facilitators in the learning journey. Teachers must design engaging and challenging learning tasks and activities tailored to students' needs and interests to invigorate their learning motivation. Simultaneously, providing timely feedback and guidance is imperative to assist students in addressing challenges they encounter during their learning trajectory and furthering their academic progress.

To achieve a student-centric classroom teaching approach, educators must consider multiple facets. Initially, they should design their instruction in alignment with curriculum objectives, encompassing theoretical and practical components, homework assignments, experiments, and more. Throughout this process, it is imperative for teachers to thoroughly assess the unique circumstances and requirements of their students, ensuring that both the content and methodologies align with these learning needs. Subsequently, teachers must orchestrate the relationship between in-class instruction and post-class activities. While class time is pivotal for knowledge acquisition, post-class learning serves as a crucial bridge to solidify and broaden this knowledge base. Teachers must judiciously plan post-class tasks, encourage students to engage in autonomous and inquiry-based learning, and enhance the learning outcomes both inside and outside the classroom. Lastly, teachers

must maintain an unwavering focus on student-centeredness throughout their instructional endeavors, organizing activities that cater to the students' interests. This may involve employing diverse teaching techniques such as group discussions, case analyses, and role-playing to invigorate students' enthusiasm for learning. Concurrently, teachers must remain attuned to shifts in students' emotional states and attitudes, adjusting their strategies accordingly to ensure a conducive learning environment.

### 2.3. Evaluation Level: Teaching Evaluation for Output and Continuous Improvement

From the student's perspective, three key elements of quality standards have been identified: stimulating learning motivation, reinforcing authentic learning, and guiding autonomous learning. These elements form the core of a student's viewpoint on Outcome-Based Education (OBE), interrelated and collectively facilitating students towards achieving a predetermined learning outcome. The first element, stimulating learning motivation, serves as the foundation for OBE education. The objective of education extends beyond merely imparting knowledge; it is crucial to foster students' interest and motivation towards learning. This can be achieved by designing engaging curriculum content, utilizing interactive teaching methods, and offering personalized learning support. Such measures effectively stimulate students' learning motivation, enabling them to actively engage in the learning process. The second element, reinforcing authentic learning, emphasizes the application of learned knowledge and skills in real-world scenarios to address practical problems. This approach facilitates the transition of theoretical knowledge into practical abilities, thereby enhancing students' overall qualities and problem-solving capabilities. For instance, through activities such as experiments, case analysis, and field trips, students are given opportunities to apply their knowledge in tangible situations, thereby enriching their learning experience and fostering a sense of accomplishment. The third element, guiding autonomous learning, is a pivotal objective of OBE education. Autonomous learning ability forms the bedrock for lifelong learning and is a vital skill for adapting to future societal developments. By fostering awareness of autonomous learning, providing resources and support for autonomous learning, and encouraging self-reflection and summarization, students can gradually develop the capacity for autonomous learning and achieve self-driven learning. For instance, within the context of the "Professional English" curriculum, students were encouraged to engage in autonomous learning. This was facilitated by providing them with essential resources and support. As a result, a paper was published under the first authorship of one of these students<sup>[7]</sup>. This publication not only serves as a foundational research experience for their future academic or professional pursuits but also represents a significant method for achieving tangible outcomes.

To answer the four questions that OBE Student Perspectives is concerned with, we need to consider the following:

① What are the desired learning outcomes for students? This necessitates a precise delineation of curriculum objectives and a detailed articulation of the content of these learning outcomes, encompassing knowledge, skills, attitudes, and other necessary requirements.

② The rationale behind students achieving these learning outcomes necessitates a comprehensive examination of their significance and utility, both in terms of individual student development and societal requirements.

③ Ensuring the effective attainment of these learning outcomes necessitates the formulation of judicious teaching plans and methodologies, provision of essential learning resources and support, and the stimulation of students' motivation and interest in learning.

④ Determining the attainment of these learning outcomes necessitates the development of rigorous evaluation mechanisms and standards. This involves assessing students' progress through

both formative and summative evaluations.

To accomplish the aforementioned objectives, it is imperative to design assessments and grade evaluations that align with curriculum objectives. This necessitates the establishment of precise scoring criteria and evaluation techniques, ensuring objectivity and fairness in the assessment outcomes. Concurrently, establishing an "evaluation-feedback-improvement" cyclical process is crucial. Through ongoing formative assessments and feedback, students can promptly recognize their learning progress and identify areas for improvement. This enables them to modify their learning strategies and methods, thereby enhancing their learning outcomes. Such a continuous improvement cycle allows students to experience the satisfaction of learning achievements, bolstering their self-confidence and motivation to learn.

### **3. The Development of Emotional Value of Curriculum**

The process of developing the emotional value of a curriculum primarily involves four distinct steps:

① Upon examining the intrinsic factors influencing learning interest, it becomes evident that students' innate needs, personality traits, and cognitive attitudes towards various disciplines play pivotal roles. Consequently, when refining curriculum objectives, it is imperative to take into account these internal determinants and craft objectives that elicit intrinsic motivation. Concurrently, there should be an integration of explicit ideological and political education content within the curriculum standards. This approach ensures that while knowledge acquisition is emphasized, students' ideological and political awareness is also nurtured, bolstering their sense of social responsibility and mission. Such a curriculum design not only facilitates the acquisition of knowledge skills but also fosters the refinement of students' thoughts, shaping their worldviews, life perspectives, and values.

② Teachers, as the primary agents of educational endeavor, are transitioning from traditional knowledge disseminators to emotional facilitators. This evolution necessitates that teachers not only maintain robust professional expertise but also exhibit high levels of emotional intelligence and a capacity for humanistic care. Teachers must be adept at discerning and comprehending students' emotional states, employing suitable emotional expression and guidance techniques, fostering a positive learning environment, and fostering the holistic development of their students. Professional ideological and political construction represents a significant aspect of education in the contemporary era, with teachers serving as pivotal participants in this endeavor. To effectively execute professional ideological and political construction, it is imperative to robustly enhance the formation of teacher teams and to elevate teachers' ideological and moral standards along with their professional literacy. This implies that the reinforcement of ideological and political education for educators is imperative, along with an enhancement of their professional identity and mission. It also necessitates teachers' conscious implementation of the concept of ideological and political education within their teaching practices. Furthermore, it is crucial to cultivate a faculty characterized by high moral character, extensive learning, and dedicated pedagogy. This entails careful consideration of both the ideological and moral quality as well as the educational sentiment when selecting and training teachers. Simultaneously, providing continuous opportunities for professional development and learning ensures that teachers can consistently update their knowledge base, refine their teaching capabilities, and adapt more effectively to the evolving demands of education in the contemporary era. Through such concerted efforts, we can foster the development of superior teachers capable of delivering high-quality educational services to students, while simultaneously cultivating talents possessing commendable ideological and moral values alongside professional skills for societal benefit.

③ In the development of pedagogical content, it is imperative to incorporate ideological and political elements, thereby achieving a harmonious blend of knowledge dissemination and ideological education. Specifically, each curriculum ought to delineate clear knowledge objectives, ability objectives, and emotional attitude value objectives. Historically, educators have predominantly focused on the delivery of knowledge and abilities during instruction, often overlooking the cultivation of emotional attitude values. Nonetheless, fostering emotional attitude values is pivotal for the holistic development of students. Consequently, in future curriculum design for ideological and political construction, it is essential to meticulously identify and integrate "ideological and political elements" within each specialized curriculum, particularly the emotional attitude value objectives embedded within the professional knowledge system. Such an approach ensures that students receive appropriate ideological and political education alongside their professional knowledge acquisition, fostering a sense of social responsibility, civic awareness, and ethical conduct. The seamless amalgamation of instructional content with ideological and political components is an indispensable requirement for contemporary education. It is imperative to design educational content with precision and emphasize the cultivation of emotional attitude value objectives, aiming to nurture students who possess well-rounded moral, intellectual, physical, and aesthetic development.

④ In the process of reforming examination methods, it is imperative to transcend traditional models and incorporate ideological and political education into the examination system. This implies that the examination content should not be confined solely to the mastery of professional knowledge but should also encompass the assessment of students' ideological and political qualities. To achieve this, examination standards and evaluation systems must align closely with the explicitly stated goals of ideological and political education in the teaching syllabus. This ensures that students receive appropriate guidance and encouragement at the ideological and political level while acquiring professional knowledge. During the examination process, emphasis should be placed on students' sense of gain, which encompasses not only the mastery of knowledge skills but also the recognition of values and the nurturing of emotional attitudes. The examination mode can be diversified through methods such as case analysis, group discussions, and social practice, allowing students to participate, experience, perceive, and grow. Such an examination mode effectively stimulates students' intrinsic motivation, encourages active learning and self-improvement, and ultimately achieves the educational goal of holistic development in morality, intelligence, physique, aesthetics, and labor.

#### 4. Conclusions

This paper investigates the application of the OBE concept in curriculum design, integrating a "student-centered" approach into the development of both knowledge and emotional value within the curriculum. Guided by learning outcomes, it examines the methods of developing curriculum knowledge value at the design, implementation, and evaluation levels. The study aims to stimulate student motivation by subtly integrating ideological and political content with professional content. It further explores the method of developing the emotional value of the curriculum and applies research findings to practical training in IT majors. This involves implementing these practices in professional curriculums, evaluating the teaching effectiveness of these curriculums, and examining the research results related to the topic. The findings provide valuable insights for OBE teaching reform in applied universities.

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