

Research Article

The Implementation of Merdeka Belajar Kampus Merdeka Through Adaptive Learning Program and Curriculum Development

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Abstract.

Merdeka Belajar Kampus Merdeka (MBKM), a program of the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia, enables students to learn about practical knowledge and gain important skills for their future employment. The program was implemented by the Civil Engineering Department at Universitas Kristen Maranatha through projects on curriculum development and adaptive learning programs. Four tasks were carried out namely, project-based learning modules, curriculum preparation, curriculum drafting, and curriculum finalization. The goals were to meet the key performance indicators (KPI) of higher education.

Keywords: adaptive learning, curriculum development, key performance indicators, Merdeka Belajar Kampus Merdeka

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1. Introduction

The Merdeka Belajar Kampus Merdeka (MBKM) program was announced by the Minister of Education and Culture of the Republic of Indonesia at the beginning of 2020. It consists of four subprograms for higher education institutions which are university accreditation, introduction to new study programs, accessible procedures in establishing higher education institutions as legal entities, and students' right to spend three semesters studying other subjects outside their major. The four initiatives enable higher education institutions to be more resourceful, independent, less bureaucratic, and creative. The nine programs available are student exchange, internship/work experience, teaching in educational institutions, building villages, research, entrepreneurship, independent study, humanitarian projects, and national defense.

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The main challenge in implementing MBKM curriculum and its policy is administrative issues such as building partnership between study programs and external parties. During the COVID-19 pandemic, online learning was very helpful in the application of MBKM. By adding more elective courses to the curriculum, the program may probably still use some refinement. This would provide students greater freedom [1]. The employability of graduates is related to the preparation for executing the MBKM policy at higher education [2]. In order to establish student exchange programs with other universities, teaching assistant programs in educational institutions, programs to develop villages/thematic talks for students and lecturers, and other projects, a grant program called "Kampus Mengajar" has been received [3].

This study elaborates the implementation of MBKM through curriculum development projects and adaptive learning programs carried out by the Civil Engineering Department at Universitas Kristen Maranatha. Curriculum development projects must continue to be studied and developed by considering the existing challenges so that the direction of its development responds to future challenges. The goal of adaptive learning programs, on the other hand, is to give students an effective, efficient, and appropriate learning experience by dynamically modifying the learning content to improve their unique skills or preferences. Project-based learning modules, curriculum drafting, curriculum finalization, and curriculum preparation are the four processes that make up curriculum development projects and adaptive learning programs. These initiatives are meant to help institutions meet the goals set forth in the MBKM program, which are known as the Key Performance Indicator (KPI) of higher education.

2. Theory Approach

2.1. Curriculum Development

Curriculum development is defined as a planned, thoughtful, and intentional achievement that aims to improve the quality of teaching and students' learning experiences. It includes creating and setting up educational activities that are intended to achieve specific learning objectives. It also necessitates a careful assessment of the results of the lessons. The primary goal of the curriculum is to enhance the effectiveness and quality of the teaching and learning process.

The development of students' personal talents and abilities, which are thought to be equally important for advancing students' practical or professional abilities, goes hand in hand with the curriculum creation for project-based and problem-based learning [4]. As a teaching method, project-based learning supports, facilitates, and enhances the learning process. In addition, teachers characterize project-based learning as studying that is exciting, encouraging, and allows students to do it collaboratively [5]. One way to implement curriculum development is to use creative learning plans [6]. According to assessments made by specialists in learning design and instructional materials, creating a curriculum for the subject of "Jadi Pendamping Adik" is one of the proper learning activities that raises the standard of learning [7]. Using audio, video, and multimedia software, a curriculum development project for future global communications assists students in developing understanding of Social Justice and Gender Equality as well as advanced English language skills for everyday communication [8].

2.2. Adaptive Learning

In recent years, the idea of adaptability has emerged as an important research issue for learning systems. Due to the fact that learners process information in varied ways and view things differently, research has shown that applying adaptability can improve the learning environment [9]. Adaptive learning is a learning methodology designed to suit the individual requirements of students. Through a variety of techniques, adaptive learning technology progresses an evaluation of each person's knowledge base, and then provides further learning tailored to each learner's needs [10]. Useful advice for institutional leaders and project implementers connects to the necessary organization, institutional promise, provision, and resources when implementing adaptive learning in higher education context [11].

Learning etiquette and personalized learning styles are the two innovative adaptive learning approaches [12] that are particularly beneficial for improving academic achievement and learning efficiency [13][14]. On improved adaptive learning, a developing pedagogical approach made possible by a clever learning environment [15]. However, adaptive learning technology is defined as a crucial opportunity to customize the curriculum and learning strategies for each individual learner while maintaining teacher-facilitated learning [16][17].

2.3. Key Performance Indicator of Higher Education in Indonesia

There are eight key performance indicators to drive higher education transformation in Indonesia as follows,

1. Suitable employments for graduates
2. Students engage in activities outside of class
3. Lecturers participate in activities off campus
4. Professionals teach on campus
5. The community uses and recognize lecturer's work
6. Quality of the curriculum
7. partnership with top-tier partners
8. International standard study program.

These eight indicators become one of the achievements of universities towards the implementation of the MBKM. Universities are then required to formulate the main performance indicators and then make them a priority. Through the formulation of these main performance indicators, it will be easier for the government to measure the achievements of universities. Meanwhile, the eight main performance indicators formulated by higher education are also able to encourage them to continue to grow. So that they have the motivation and ability to achieve the eight KPIs.

3. Methods and Results

3.1. Curriculum Preparation

The MBKM program requires every study program to cooperate with the widest possible partners. Partners in curriculum development are university partners, industrial world business partners, professional organization partners and Civil Engineering alumni. The inputs expected from partners are the teaching and learning process, learning tools with metaverse technology innovation, the required software, learning materials for Earthquake Engineering, disaster mitigation, Soil investigation and Foundation Engineering, Design of Concrete Buildings, Wood Structures, Concrete Structures, Building Information Modelling (BIM).

Expanding cooperative learning relationships with partners, the targets and indicators of achievement are the increasing number of partners in curriculum development, increasing the quality of graduates who can continue their studies at partner universities along with obtaining further study scholarships, and increasing graduates working in industrial world business internships. The output targets are recommendations for curriculum changes and learning materials, application of tools that need to be used, and software used in industry.

The implementation will be carried out on a hybrid onsite/online basis. The hybrid activity is devoted to meetings and discussions between the Study Program and partner universities such as National Cheng Kung University (NCKU), Nazarbayev University, some universities in Bandung, P.T. Wiratman, Indonesian Association of Civil and Structural Engineering, Indonesian Association of Hydraulics Engineers, Indonesian Road Development Association, the Institution of Engineers Indonesia, Civil Engineering Alumni Association, and P.T. Monsterar Technology Indonesia.

The resource persons are from NCKU related to curriculum, further studies, post-graduate scholarships, PT. Wiratman regarding internships and graduates working at industrial world business after internship, some universities in Bandung, and P.T. Monsterar Teknologi Indonesia related to metaverse technology.

3.2. Designing Curriculum

Revision of the MBKM curriculum and the flow of implementation and conversion were carried out so that the MBKM-based learning process is achieved and in accordance with international accreditation standards. Various recommendations from partners became the basis for curriculum revision. Curriculum transformation related to case and project-based learning innovations and metaverse technology-based learning innovations can be implemented.

Improving the curriculum using a case-solving approach (case method) or project-based learning in evaluating as many main competency courses as possible. The output targets are the new MBKM curriculum and the completeness of Semester Learning Plans, Learning Meeting Plans, Student Task Plans, etc. Dissemination and publication of curriculum changes and guidelines were on university and study programs websites, videos on YouTube and student associations. The implementation was carried out in

an onsite/online hybrid in the form of workshops on curriculum preparation and training in making complete documents.

3.3. Finalization Curriculum

Evaluating curriculum has been prepared based on partner recommendations. The output targets are the finalization of the curriculum and learning materials, the application of the tools that need to be used, and the software used in the industry. Implementation was carried out offline. Offline activities are devoted to meetings and discussions between the Curriculum Team and partners. Resource persons for curriculum finalization activities are industrial world business partners, Universities, Professional Associations, and Alumni.

3.4. Project-Based Learning Modules

Project based learning was linked to activity for curriculum on earthquake-resistant lodging modular buildings. Students were invited to enjoy learning through the creation of earthquake-resistant modular building models ranging from soil investigations, foundation models to building models. Students carried out learning activities by playing an active role in the planning, implementation, and evaluation processes. The activities included training on earthquakes and disaster mitigation, learning innovations in the form of making prototypes of foundation models and earthquake-resistant modular buildings and testing them. The purpose was to apply a case-solving approach (case method) or project-based learning in evaluating as many main competency courses as possible. The output targets were project-based learning modules on earthquake-resistant lodging modular buildings, various prototypes of foundation models and earthquake-resistant modular buildings, reports on model testing results. The implementation was carried out onsite in the form of assistance in making prototypes of foundation models and earthquake-resistant modular buildings in the laboratory. Experts for counselling were internal lecturers of study programs and external experts.

The implementation of MBKM through curriculum development programs and adaptive learning programs have a goal to target the main performance indicators in higher

education. The KPI that can be achieved are Suitable employments for graduates, students engage in activities outside of class, professionals teach on campus, partnership with top-tier partners

4. Conclusions

Students can learn about practical information and gain important skills for their future employment through the MBKM program offered by the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia. Through curriculum development initiatives and adaptive learning programs, the Civil Engineering Department at Universitas Kristen Maranatha put the Merdeka Belajar Kampus Merdeka into practice. Project-based learning modules, curriculum preparation, curriculum making, and curriculum finalization were the four tasks carried out for the project's adaptive learning programs and curriculum development. The key performance indicators for higher education were anticipated to be met through these initiatives. The program was expected to achieve the primary performance indicators, namely that lecturers engage in activities off campus, that their work is appreciated by the general public, and that they use an international standard study program when implementing the MBKM program.

5. Authors' Contributions

OP have been concerned in composing and correcting the manuscript. All authors have composed substantial involvements to idea and proposal, examined and approved the final manuscript.

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