

The Development of a Prototype Curriculum for Indonesian Education in 2022

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Abstract

This study aims to identify and examine the new curriculum, namely the prototype curriculum utilized in all Indonesian educational institutions. This curriculum is a metamorphosis of Indonesian curricula. The prototype curriculum will be evaluated and reviewed using Prof. M Amin Abdullah's integration-interconnection technique. This study aims to determine if the prototype curriculum is a viable option for reestablishing learning after the Covid-19 epidemic. Is the prototype curriculum just a reintroduced curriculum with the same material, aims, and vision as the preceding curriculum? Prof. M Amin Abdullah's integration-interconnection strategy is a novel way to assist in the resolution of contemporary societal challenges via scientific integration. This implies that the connection between disciplines is mutually beneficial, if not antagonistic. Is the prototype curriculum the best way for students to attain their objectives, succeed in the country, and address increasingly difficult problems? The library research technique was adopted, qualitative descriptive with an integration-interconnection approach. This research indicates that a prototype curriculum is a novel approach to education that is particularly well-suited for use in the middle of such a difficult period.

Keywords: Curriculum Analysis, Prototype Curriculum Development, and Integration-Interconnection Approach.

Introduction

The curriculum is a critical organ in determining the direction and purpose of education. An educator or teacher is someone who plays a critical and fundamental part in the process of administering and

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attaining a curriculum(Beerwinkle, Wijekumar, Walpole, & Aguis, 2018). A teacher or educator must be capable of carrying out and succeeding in the teaching and learning processes associated with the school's relevant curriculum. Whether or not a curriculum is implemented at an educational institution is contingent upon the teacher's talents and abilities to comprehend the relevant curriculum(Zhang, Zhou, Wang, & Song, 2021).

Throughout history, the curriculum used in Indonesia has experienced various revisions. These changes occur in response to changes in the government's power structure and ambitions. As an often-heard term in the minister's community, if the curriculum changes, the curriculum will change as well. Curriculum revisions began in 1947, 1952, 1964, 1975, 1984, 1994, 2004, 2006, and 2013. Changes happened due to acclimating to an education system that was always changing and evolving in social, political, economic, and technical aspects(Bogaerds-Hazenberg, Evers-Vermeul, & van den Bergh, 2020). When it comes to education, the COVID-19 epidemic has had a major effect, particularly on distance learning techniques that must be completed online(Andiyan et al., 2021).

More precisely, curricular modifications may be reduced to substitutions. The 1975 curriculum was replaced by the 1984 curriculum, which was subsequently replaced by the 1994 curriculum, followed by the 2000 curriculum, the 2004 and 2006 curriculums, or KTSP, and the 2013 curriculum. The government has issued three national curriculum alternatives for learning recovery, including the 2013 curriculum, the emergency curriculum, and the prototype curriculum. However, implementation will be consistent with the purpose, especially the restoration of learning. The prototype curriculum was first utilized for the driving school program and SMK PK in 2021, but they were required to adopt it nationwide later that year(Merchant & Nyamapfene, 2020). In maximizing the use of new and renewable energy, the highest weight lies in renewable energy per tonne of FFB and the use of solid waste (empty shells and shells) as a substitute for fossil fuels of 45.5% each(Rosyidah et al., 2022).

Curriculum changes are unavoidable and must be implemented, but they must always be tailored to current demands and values. The prototype curriculum is a new curriculum developed by the government to assist students in regaining their learning abilities after the Covid-19 epidemic(Bogaerds-Hazenberg et al., 2020). This article will explore the history of curriculum creation in Indonesia, the content and structure of the prototype curriculum, and how the prototype curriculum is seen through the lens of Prof. M Amin Abdullah's scientific integration method. The extension is an active procedure requiring contact between the extension worker and the

individual to establish a behavior change process(Sulandjari et al., 2022).

Research Methodology

This study employs a normative approach and a literature review (library research) as a technique, using data drawn from books, papers, and journals on the same subject as this research(Sugiyono, 2012). This study is qualitative-comparative-descriptive. The method used in this study is Prof. M Amin Abdullah's integration-interconnection approach(Moleong, 2007). This type of research is a literature study. The literature study method is a series of activities regarding the methods of collecting library data, reading and taking notes, and managing materials research(Sugiyono, 2012). A literature study is carried out by each researcher with the primary objective of finding a basis for obtaining and building theoretical foundations, frameworks, thinking, and determining provisional guesses known as research hypotheses. Until the researchers can classify, allocate, organize, and use a variety of libraries in their field. While the population in this study are people who have a relationship in the field of Information Technology and Education(Moleong, 2007).

The literature study research design used is a narrative review. A narrative review is a type of research that summarizes theory, examines studies, and investigates the methods used in research existing research. The review gathers the spectrum through the literature written on the topic and synthesizes it into a coherent interpretation that highlights critical issues, trends, complexities, and controversy at its centre. The article search procedure is carried out on the Google Scholar page. The application publishes or perish science direct by typing the keywords Metaverse and Education. Articles searched for from international journals, accredited and non-accredited national journals, proceedings, theses, or thesis from 2017-to 2022. The validation and review process includes several provisions, including journals accessed free of charge (OJS), quality of research methodology in articles, data presentation and discussion quality, adequacy of data for analysis, references up to date, and relevance. Results of validation and review of scientific articles are presented in tabular form. Data analysis used a qualitative analysis of the Miles and Huberman model, including data reduction, data analysis, and concluding.

Research Results And Discussion

Indonesia's Curriculum Development History

According to the National Education System Law No. 20 of 2003, the curriculum is a collection of regulatory plans outlining the content, goals, and instructional materials and serving as a guide for developing the curriculum and syllabus for each academic unit. According to Crow, a curriculum is a method of instruction organized methodically to get a degree or certificate. Additionally, Arifin defines curriculum as "all learning resources that must be used in education in a formal educational system(Bazerman & Russell, 2020).

According to its development, the curriculum's scope has expanded from initially discussing only the problem of teaching materials or subjects that must exist in the teaching and learning process to now including all of the students' teaching and learning processes, including their attitudes, knowledge, and skills—results of education(Ritonga, 2021). Outside-of-school activities are also included in the evaluation of pupils to improve the participants' talents and quality of life and ultimately enable them to develop into human beings capable of responding to current difficulties.

Curriculum modifications have occurred multiple times during the evolution of education in Indonesia. The changes that occur are in response to a process of development occurring in all facets of human existence. The changes that happened could not be isolated from the developmental circumstances that existed at the time and the curriculum material that needed to be altered to reflect these changes. The development in question spans politics, economics, social issues, and technology; the objective is to establish a civilization worthy of an advanced nation, including overhauling the educational system's current curriculum(Darge, 2015).

Curriculum revisions began in 1947, 1952, 1964, 1975, 1984, 1994, 2004, 2006, and 2013. Each curriculum reform has substance and content and a rationale for its implementation. However, the changes are carried out by the government structure's power holders. However, what these power holders do is inextricably linked to the findings of interviews, analyses, and data and facts gathered at different educational institutions and elsewhere(Ghosh, Parrish, & Chasey, 2015).

The first curriculum utilized in Indonesia was in 1947, dubbed the 1947 curriculum or more often referred to as the 1947 lesson plan. The 1947 curriculum or 1947 lesson plan was implemented after Indonesia's independence in 1945 and was inspired by the sociopolitical order of the period, namely the colonialists who had previously colonized Indonesia, such as the Netherlands and Japan. This curriculum is unique because it reorients education in the Netherlands toward national interests. Pancasila is the guiding idea, and this curriculum was first established in schools in 1950(Muhajir, 2020). The independent variable was Community- Based Total Sanitation which

includes the behavior of open defecation, drinking water and food management, household waste management, and household waste water management(Indah et al., 2022).

The 1947 Study Plan is divided into two sections: a list of courses and teaching hours and a teaching plan. This curriculum places a premium on character education, understanding of the state and community, subject content relevant to current events, and an emphasis on the arts and physical education. The 1947 curriculum's characteristics include the following: the nature of the curriculum for separate subjects, the use of Indonesian as the language of instruction in schools, and the differences between subjects at various levels of education; People's School with 16 Fields of Study, SMP-17 in the Field of Study, and SMA B-19 in the Field of Study(Walsh, 2015).

Additionally, the 1952 curriculum was a supplement to the preparatory curriculum, specifically 1947; the 1952 unraveling lesson plan was the name of this curriculum. The nation's goals developed this educational and teaching curriculum. This curriculum, which is a progression of the preceding one, has certain objectives. This curriculum is based on the Pancawardhana philosophy, emphasizing creativity, aesthetics, character, work, and values. The subject matter offered is fairly excellent, including moral, cognitive, emotional/artistic, and physical abilities and orientation to the community, so that students may begin working immediately upon completion of school. However, this curriculum does not reach the whole community. This curriculum is more specific in that each topic must have its syllabus to aid in teaching and learning activities(Beerwinkle et al., 2018). To anticipate project delay proper planning is required. One of project planning method is project scheduling. Great loss because of the overdue amount, the company must evaluate their project schedule(Andiyan Andiyan, Putra, Rembulan, & Tannady, 2021).

After the 1964 curriculum replaced the 1952 curriculum, the 1964 curriculum served as a supplement to the 1952 curriculum. However, the 1964 curriculum changed the goals, to create a society that was Pancasilaist, socialist, nationalist, and patriotic. one who is tall. Concerning substance or program content, and its disciplines, the 1952 curriculum remains unchanged, and the most apparent distinction is in the concentrated aim(Succi, 2018).

1947, 1952, and 1964 curricula were largely the work of the old order administration, namely President Soekarno. Following that is the curriculum utilized by Soeharto's New Order regime from 1966 to 1998, which includes four curricula that have evolved to the level of the New Order leadership. Curriculum 1968, 1975, 1984, and 1994 are the four curricula(Tahirsylaj, 2020). To measure and educate public

awareness in implementing health protocols, further research is needed(Cardiah, Andiyan, & Rahma, 2021).

The 1968 curriculum is an evolution of the ancient order's pancawardhana program, which fostered the spirit of Pancasila, fundamental knowledge, and particular abilities. This curriculum is the embodiment of the 1945 Constitution, and the substance of education is geared toward activities that foster knowledge in the form of intellect and skills and promote physical fitness and strength. Students acting in their roles within this program are just passive people who memorize theories(DuBose-Morris, 2021).

The 1975 curriculum was intended to build upon the 1968 curriculum by being more objective-oriented. This curriculum has been developed and changed to meet the changing needs of society. It is based on various concepts in its design, including the principle of program flexibility, the principle of efficiency and effectiveness, the goal-oriented principle, the continuity principle, and the philosophy of lifelong education. The 1975 curriculum acknowledges the PPSI technique, or Instructional System Development Procedure, to develop a measurable and efficient teaching system(Huang, 2020). The modern

architectural approach to the Transfer Hub building adds value to the area's views and mode of transportation(Andiyan & Cardiah, 2021).

Meanwhile, the 1984 curriculum represented a departure from the 1975 curriculum, which was seen to have fallen short of meeting the demands of the period. The 1984 curriculum is distinguished by a learner-centered instructional method based on the CBSA (Active Student Learning Method) concept. Additionally, material submissions started to use field methodologies to maximize efficiency and effectiveness in accomplishing educational goals. This unified curriculum is founded on universality, comprehensiveness, and integration(Waterman, 2020).

The 1994 curriculum supplements the 1984 curriculum; it is also relevant to the 1989 National Education Law, No. 2. The curriculum was changed from a semester system to a quarterly system in response to the new order's politics of the time, notably the GBHN. The objective of education is to equip students with the capacity to ask and answer questions(Leung, 2020). The characteristics of this curriculum are the following: the use of caturwuluan, solid material; the implementation of a uniform curriculum system for all students throughout Indonesia; the predominance of mathematics and language lessons and the absence of art education; the transition from PMP (Pancasila Moral Education) to PPKn (Pancasila and Citizenship Education); and the inclusion of restricted content (MULOK) such as

regional languages, etc., whose application is determined by the interests and needs of each.

The next development is that it may be entering a phase of reform or democracy, as has been so often expressed since the end of the New Order regime. The curriculum covered during the reformation era began in 2004 and has likely evolved more in the years to come. Considering that curricula are always being revised and evaluated, they will undoubtedly alter in response to changing government and life development situations(Deng, 2020).

The 2004 curriculum is referred to as the Competency-Based Curriculum (KBK). According to the Ministry of National Education in 2002, a curriculum is a collection of plans and arrangements for students' skills and learning objectives, evaluation, teaching and learning activities, and the empowerment of educational resources(Luckett, 2020). The KBK curriculum has the following characteristics: Emphasis Competence is not the completion of the material; it can be replaced or altered according to student potential; it is student-centered, results- and process-oriented; it utilizes diverse and contextual methods and approaches; teachers are not the sole source of knowledge; it teaches students to learn for life, to know, do, and be themselves in diversity.

The following curriculum was implemented in 2006 and is referred to as the Education Unit Level Curriculum (KTSP). This curriculum was conceived during the start of President Susilo Bambang Yudhoyono's administration, which was committed to expressing regional sovereignty, notably in education(VanTassel-Baska, 2021). KTSP is a curriculum that allows schools to develop curriculums that meet their unique needs and those of their students; the government serves only as a developer of competency standards for content and graduation, as well as an assessor through the agency established by BNSP to evaluate the curriculums implemented in each school. The KTSP's instructional strategy focuses on content, study hours, and program structure. This curriculum serves as a guide and a reference for implementing education to improve numerous educational areas (cognitive, affective, and psychomotor)(Wang, 2020).

The 2013 curriculum is the next evolution; it supplements the KTSP or 2006 curriculum. The curriculum is not just a document that must exist regardless of other dimensions; the curriculum must have numerous aspects that must exist to determine a curriculum's success or failure to occur. These include a concept, a written plan, an action, and an outcome(Nuland, 2020).

The 2013 curriculum includes four structural improvements, including Graduate Competency Standards (SKL) that must balance attitudes, knowledge, and abilities, content standards, process and evaluation

standards, or Basic Competencies (KD) and Core Competencies (KI). This involves a model of theme integration, a scientific methodology, an active strategy, and genuine evaluation. The objective is to develop an active, inventive, creative, productive, and emotional generation. This shift occurs in reaction to the fast advancement of technology (Silva, 2020).

This was insufficient until the 2013 curriculum, at which point the curriculum was altered once again, this time to become a prototype curriculum. This curriculum is based on the effect of the Covid-19 viral pandemic, which began in 2019 and continues to have a tremendous influence on many aspects of life, including education. This is why curriculum development begins with the 2013 curriculum (pre-pandemic), then transitions to the emergency curriculum (simplified 2013 curriculum) (Pandemic 2020-2021), and finally to the Prototype Curriculum as an option for all education units (2022-2024). This objective is to restore learning due to the Covid-19 epidemic, which leads to alterations in student learning patterns. This is accomplished by utilizing assessment data from the learning recovery phase.

Values in National Character and Culture Education

Education is a process of enculturation that serves to transmit previous ideals and accomplishments to future generations. These beliefs and accomplishments are the source of national pride and international recognition. Education also has the job of transforming cultural values and historical successes into national cultural values that are compatible with current and future living, as well as producing new achievements that constitute the nation's new personality. Consequently, cultural education and national character are fundamental to the educational process.

The process of creating the values that constitute the foundation of a person's character must be ongoing and conducted via a variety of disciplines (citizenship, history, geography, economics, sociology, anthropology, Indonesian language, social studies, science, mathematics, religion, physical education and sports, arts, and skills). In building national character education, an individual's sense of who he is and his country plays a crucial role. Only through history that gives illumination and explanation of who the country was in the past and how it developed itself and its nation in the present can this consciousness be fully awakened. In addition, education must cultivate awareness, knowledge, insight, and values regarding the environment in which the individual and the nation reside (geography), societal values (anthropology), prevailing and developing social systems (sociology), state administration systems, government, and politics (state administration/politics/citizenship), the Indonesian language and its way of thinking, economic life, science, technology, and the arts. In other words, a curricular breakthrough is required in

the form of the development of values that serve as the foundation for cultural education and national character. With such a curriculum advancement, the values and character traits acquired in children will be very robust and have a significant influence on their lives, society, country, and even humanity.

Teaching of culture and national character is accomplished via the education of values or qualities that are fundamental to culture and national character. Essentially, the virtue that is an attribute of a character is a value. Consequently, cultural education and national character are essentially the formation of values drawn from the Indonesian nation's perspective on life or ideology, religion, culture, and values articulated in the purposes of national education.

Table 1: Values and Description of the Value of Culture and Character Education in the United States

SCORE	DESCRIPTION
Religious	Obedient attitudes and actions in carrying out the teachings of their religion, tolerance for the worship practices of other faiths, and coexistence with adherents of other religions.
Honest	Behaviour based on the individual's attempts to become a person who is always trustworthy in words, deeds, and work.
Tolerance	Respectful attitudes and behaviors toward the religion, ethnicity, ethnicity, views, attitudes, and behaviors of others who are different from oneself.
Discipline	Conduct that demonstrates order and complies with numerous norms and regulations.
Hard work	Behaviour that demonstrates a sincere attempt to overcome different learning and task obstacles and complete tasks to the best of one's ability.
Creative	Thinking and acting to create a new method or outcome from something that currently exists.
Independent	The attitudes and actions that make it difficult to rely on others to accomplish tasks.
Democratic	A manner of thinking, responding, and acting that examines his and others' rights and duties.
Curiosity	Attitudes and behaviors that constantly seek to gain a deeper and broader understanding of anything taught, seen, or perceived.
Spirit of nationality	A method of thinking, doing, and having insight that puts the nation's and state's interests above those of the individual or group.

Love the Motherland	A manner of thinking, behaving, and acting that demonstrates respect for the nation's linguistic, physical, social, cultural, economic, and political surroundings.
Appreciating Achievements	Attitudes and behaviors that inspire him to contribute to society and recognize and appreciate the achievements of others.
Friendly/Communicative	Joyful behaviors include conversing, interacting, and collaborating with others.
Love peace	Positive and reassuring attitudes, words, and deeds that make others feel at ease in their presence.
Like to read	His virtue is enhanced by his habits of devoting time to reading a variety of texts.
Environmental care	Attitudes and behaviors that constantly seek to avoid harm to the surrounding natural environment, as well as attempts to restore the harm that has already been done.
Social care	Attitudes and behaviors characterized by a constant desire to aid individuals and communities in need.
Responsibility	The disposition and conduct of a person to fulfill his responsibilities and obligations to himself, society, the environment (nature, society, and culture), the state, and the Almighty.

The government launched the policy for Cultural Education and National Character based on input from the community; development has been conducted jointly by the Research and Development Agency (Balitbang), several Main Units within the Ministry of National Education, and the office of the Coordinating Minister for People's Welfare. The community and allied institutions have designed and implemented 'manageable' education on values, morality, and national character in line with their capacities and government policy backing. Currently, government policies not only provide assistance but also play an active part in shaping the culture and character of the country.

Balitbang has also created a book on National Culture and Character Education based on a study of community input via mass media, seminars, workshops, and literary studies, as well as direct attempts to promote values, morality, culture, and character education.

Nonetheless, the implementation of National Culture and Character Education necessitates a number of modifications to the current educational process in place in schools. The necessary modifications need new attitudes and abilities from instructors, administrators, and

school counselors, but do not alter the curriculum. These new attitudes and abilities are necessary (*conditio sine qua non*) prerequisites for the effective implementation of National Culture and Character Education. Only through concentrated, sustained, and comprehensive in-service education can changes in attitude and mastery of the necessary skills be fostered.

Character as 'moral excellence' or morality is comprised of numerous qualities (virtues), which have significance only when based on the prevalent cultural ideals (nation). The character of the Indonesian country is the character acquired by its inhabitants based on behaviors that are evaluated as virtuous based on the principles prevalent in Indonesian culture and nation. Therefore, National Culture and Character Education focuses on fostering the principles behind a virtue so that it becomes an integral part of a citizen's identity.

Material for Cultural Education and National Character is 'developmental,' as opposed to 'mastery' and 'performance content' of a competency-based curriculum. The nature differences between the two kinds of content need distinct instructional approaches. "Developmental" instructional materials necessitate a lengthy educational process and are mutually reinforcing between learning activities and other learning activities, between the learning process in the classroom and extracurricular activities outside of school.

It was mentioned that the difficulty of the global period is the deterioration of Indonesian human independence. The multifaceted catastrophe that befell Indonesia caused the nation's culture to deteriorate, as shown by the incidence of spiritual moral degeneration, a weakening business and work ethic, and creativity that was more stifled and headed in a bad path. It is intended that through individual growth, the community as a whole would experience "self-empowerment" and become more creative and inventive. The fact is that a significant number of schooling graduates are unable to fill job openings owing to a mismatch between their capabilities and those required by the workforce. In addition, government and commercial entities absorb a relatively small percentage of available labor. Education must always grow in quality. There is a correlation between the quality of education and the quality of processes and goods. The quality of the process may be attained if the learning process is carried out successfully and if students can appreciate and meaningfully engage in the learning process. Product quality is attained when students demonstrate a high degree of mastery of learning activities in accordance with their personal and professional requirements.

In accordance with the Implementation Guidelines for Character Education, character education may be done as follows:

Table 2: Character Education Implementation in KTSP

Character Education Implementation in KTSP	
Integration within existing disciplines	Develop curricula and lesson plans on current competences based on the values to be implemented.
Subjects in Mulok	➤ Determined by school/region ➤ Competencies are developed by the school/region
Self Development Activities	▪ Cultivation & Habituation ➤ Conditioning ➤ Routine activities ➤ Spontaneous activity ➤ Exemplary ➤ Programmed activities ▪ Extracurricular Scout; PMR; UKS honesty canteen; KIR; Sports, Arts; student council ▪ Counseling guidance Providing help to children with difficulties.

Becoming Familiar With The Prototype Curriculum

A curriculum is one of the components necessary to assist education and learning in obtaining the desired goals. The curriculum specifies the learning goals to be accomplished, the resources to be used, the teaching and learning methods, and the assessment instruments. As an educational design, the curriculum is critical in defining and developing pupils under the desired outcomes.

The curriculum's qualities include several elements that must exist in order for it to be sustainable. To begin, goals are critical components in the execution of curriculum development. While the goals are initially broad, they must be broken down into smaller, more specific components throughout implementation. The detailed part will be transformed into a learning plan to achieve the child's learning objective.

The second component is content; content, or subject matter, is a critical second component after the objective. The learning process is centered on the content or subject matter in this setting, and the content or material must be relevant and consistent with the established instructional goals. Quite the reverse, since it will obliterate the outcomes that have been formulated.

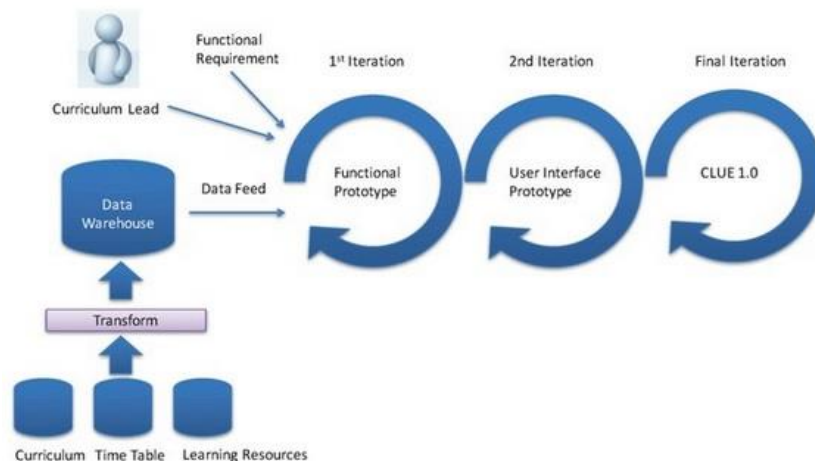
The third component of the learning process is the method; the technique is one component that plays a critical and decisive part in the attainment process. The method component is critical to reaching

the aim component. Regardless matter how precise and comprehensive the aims and contents of a curriculum are, if components of learning processes do not support them, they will fail to translate the desired outcomes.

Learning should always be contextual; learning methods and tactics are no longer limited to a teacher-led presentation but include individual, direct instruction, and group dynamics such as modular learning, observation, role-playing, and debate. In this instance, the instructor is critical to the method component. Not only is the teacher an interventionist, but he or she is also a facilitator, motivator, and guide. In his or her capacity as a facilitator, the teacher establishes and maintains a suitable learning environment. As a motivator, the instructor constantly encourages or inspires pupils to maintain their zeal for studying. The instructor as a guide is a mentoring exercise that elicits information about each student's attitudes and personality.

Fourth is evaluation; evaluation is an integral part of curriculum creation activities, educational activities, and educational institutions. The evaluation component of the procedure is the last phase, and students and the curriculum are evaluated to implement the anticipated outcomes, whether or not they are attained. So critical is the evaluation component's presence and the other components necessary for developing a curriculum.

Figure 1 Iterative systematic design of CLUE



The curriculum in Indonesia has evolved through numerous eras, beginning with the old order, the new order, and the reformation period, all the way to the current day. The curriculum that will be employed, and is presently being used, is referred to as a prototype curriculum. Its purpose is to reintroduce learning to children affected by the Covid-19 epidemic. This program focuses on character development, core concepts, and adaptability. This curriculum already

comprises components that must exist when developing a curriculum and will be described in further detail in the section on the prototype curriculum.

The prototype curriculum is a brand-new offering from the Ministry of Education and Culture. This curriculum tries to reintroduce learning after the COVID-19 epidemic. This curriculum was developed after examining the 2013 curriculum journey that was utilized following the KTSP curriculum through the end of 2021. The assessment conducted by the Ministry of Education and Culture focuses on two components: document evaluation and implementation.

The following are the conclusions drawn from the document's examination and execution. The document examination reveals that the 2013 curricular skills are too broad. Difficult to comprehend and implement by teachers, not yet fully adjusted by the education unit, the subject matter of choice, the setting of subject hours in terms of weeks (per week) does not allow schools to arrange learning plans or educational calendars freely, the thematic approach is only used in the 2013 curriculum, and the content of specialization subjects (IPA, Social Studies, or Language) does not allow students or the line of specialization to be flexible.

While the implementation evaluation's findings indicated that several components of learning tools make it challenging for instructors to execute lesson plans, teachers may struggle to comprehend the idea of the 2013 curriculum due to the detailed and fragmented competence areas. Socialization, training, mentorship, and oversight of 2013 curriculum implementations that are not operating properly. The number of supervisors, heads of schools, and teachers who are unable to communicate the basic framework, diversification, and concept of implementing the 2013 curriculum to supervisors, principals, and teachers are insufficient, and socialization, training, mentoring, and monitoring of the 2013 curriculum's implementation are insufficient. Between January and July 2020, data was collected from 150 patients who visited a clinic in East Java. A sample was accomplished using a straightforward random sampling approach. The pretest data were collected to determine perspectives and knowledge, followed by the self-management education intervention, and finally, the posttest (Setiyowati et al., 2022).

As previously stated, the prototype curriculum is the result of creating the 2013 curriculum. However, there are significant variations since the prototype curriculum was developed in response to an examination of the 2013 curriculum. The prototype curriculum will continue the previous growth path, which has a holistic perspective; the curriculum is aimed to educate pupils holistically. Holistic, including academic and non-academic abilities and cognitive, social, emotional, and spiritual abilities. Competency-based rather than

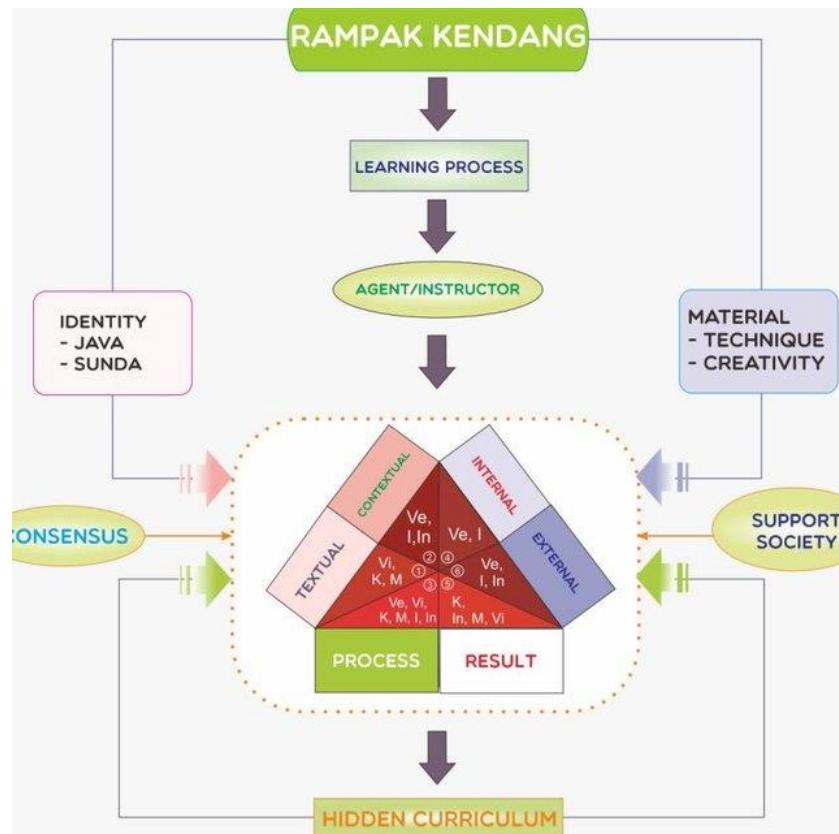
content-based development, in which the emphasis is on competency rather than on particular content or resources. Contextualization and customization; the curriculum is tailored to the context (culture, school purpose, and local surroundings) and the unique requirements of each student.

Although the prototype curriculum is a development of the 2013 curriculum, it retains the prototype curriculum's traits and peculiarities. The characteristics of this prototype curriculum that aids in learning recovery are project-based learning for the development of soft skills and character (faith, piety, noble character, cooperation, global diversity, independence, critical reasoning, and creativity), with an emphasis on essential materials to ensure adequate time for in-depth learning of fundamental competencies such as reading and numeracy, instructors' flexibility to adapt learning to students' capacities (teach at the appropriate level) and to local settings and subject.

The three qualities of the prototype curriculum will be discussed in further detail later. To begin, let us discuss character development. Character development is also included in the 2013 curriculum. However, there is no separate section in the curriculum framework. Meanwhile, between 20% and 30% of instruction hours in the prototype curriculum are devoted to developing Pancasila students' character profiles via project-based learning.

Project-based learning is important for numerous reasons: it enables students to learn via experience (experiential learning), allows students from diverse fields to integrate vital abilities, and provides a flexible learning framework. Additionally, the Ministry of Education and Culture identifies seven major themes that must be developed into modules with more specific subjects and aims, as well as the capacity of instructors to translate them; Construct the soul and body, Engineering and technology for the construction of the Unitary State of the Republic of Indonesia, Bhinneka Tunggal Ika, Sustainable Lifestyles, Indigenous Wisdom, Entrepreneurship, and the Voice of Democracy. Second, concentrating on crucial information outside of an in-depth learning environment (conversation, group work, problem-based learning, or projects) demands in-depth time. Additionally, dense content will motivate a teacher to adopt one-way lectures or other efficient teaching approaches to accomplish the topic. Thus, this prototype curriculum aims to emphasize vital information in each topic and offer space/time for the development of capabilities, particularly fundamental competencies such as reading and numeracy.

Figure 2 Hidden Curriculum Design of Traditional Art Community Rampak Kendang



Thirdly, the adaptability of school curriculum design and lesson plan preparation. Flexible curriculum design establishes learning objectives each phase (2-3 years) to allow teachers and schools to innovate in designing their curriculum and instruction. It also establishes lesson hours per year to allow schools to innovate in establishing their curriculum and instruction.

According to the presentation, the prototype curriculum's purpose was to increase reading and numeracy and make informatics an obligatory subject due to the critical need for technology. There is no specialization in science, social studies, or language at the upper secondary level to help pupils improve their abilities and creativity in their chosen topic.

Prof M Amin Abdullah's Approach To Integration-Interconnection

In a multi-crisis society, the integration-interconnection paradigm or approach must be capable of establishing a trilogy of subjective, objective, and intersubjective values by bringing together several scientific clusters in a pattern of relationship or dialogue, such as

dialogue between text-based sciences. Religion in conjunction with sciences is based on thorough thinking to comprehend the socio-anthropological evolution of religious life and sciences concerned with the human heart or emotions. Thus, the integration-interconnection method encompasses three fundamental concepts: *hadarah al-nas* (religion), *hadarah al-falsafah* (philosophy), and *hadarah al-'ilm* (Islamic philosophy) (science). These three elements are intended to mend the modern and Islamic sciences (Amin Abdullah, 2006).

The integrations in the issue are philosophical, requiring the existence of basic existential principles in respect to other scientific fields and their link to universal truth values. Three models must be used to execute integration-interconnection: the integration model into the curriculum package, the relationship model between two disciplines, namely general science and Islam, and the integration model into specific topics.

From an epistemological standpoint, the Interconnection Integration method is provided to address contemporary concerns that have been inherited and handed down through ages in Islamic civilization about the divide between general education and religious education. Each of these disciplines is distinct and does not want to be combined to discover a common thread. This subsequently affects education, with the result that the divisions between various disciplines increasingly do not seem to complement one another.

The interconnectedness integration model presupposes that to comprehend the complexity of life events seen and experienced by people, no scientific activity, whether religious academics (including Islam and other faiths), social sciences, humanities, or nature, can exist in isolation. Once a science asserts its independence and believes it can solve issues without the assistance or financing of other disciplines, this independence capacity will eventually be changed into a mindset, let alone a mentality. Uniqueness, passion, and discipline. Because only by collaboration, acceptance, mutual need, mutual truth, and linkages amongst sciences will it assist people in better comprehending the intricacies of their life while also resolving the many difficulties they encounter.

Prof. M Amin Abdullah is attempting to develop an integration-interconnection strategy to address the issues of an increasingly difficult period. The ongoing exercise of mind freedom, creativity, and invention is required to resolve these issues to overcome the mental restriction. One reason for thinking restriction is the deductive paradigm, which holds that ultimate truth exists only on one side or between religious and non-religious disciplines that do not complement one another (Abdullah, 2020).

Given the need and rationale for attempting to give an integration-interconnection strategy in the modern-day. As Prof. M Amin Abdullah said in his book *Multidisciplinary, Interdisciplinarity, and Transdisciplinarity (Method of Religious Studies & Islamic Studies in the Contemporary Era)*. Three buzzwords characterize this integration-interconnection method, the optimal solution for today's complicated existence. These three keywords will result in a dialogical and integrative mindset, specifically semipermeable, intersubjectively testable, and imaginative creativity.

To begin, semipermanent (penetrating each other). This notion originates in biology. In biology, this phenomenon is called survival of the fittest (creatures that can live the longest are the most adaptable). The link between science founded on "causality" and religion founded on "value and meaning" is mutually penetrating. What separates the two is the presence of a barrier or wall, namely the belief that they do not need one another or can live independently. When something that has become a wall is still alive and functioning, communication becomes difficult, and they begin to blame one another.

He called this notion after a spider web, which has interconnectedness and active and dynamic interactions. Each of these disciplines' interactions still has a spatial or temporal dimension. This entails preserving their identity and existence while being receptive to discourse, discussion, and contact with colleagues from different fields. Additionally, a scientific subject should not isolate itself from other disciplines. Intersubjective testability is the second. This notion evolved from how he thought about how the natural sciences and humanities function, which he learned from Ian G Barbour. However, he demonstrated it himself via a religious phenomenological lens.

Subjective, objective and intersubjective knowledge are all terms used in the domain of logic. In the study of religion, particularly the phenomenology of religion, researchers might document what they experience in ordinary life in the field using grounded research (ethnography). The researchers meticulously documented the religious phenomena, consisting of numerous fundamental elements: beliefs, rituals, leadership, scriptures, history, morals, and tools. These features are factually present in all religious societies. It is, however, launched subjectively by the researchers who did the investigation.

The change in objectivity and subjectivity happened due to the perpetrators' disparate goals. To begin, from scholars who are always attempting to analyze religious occurrences objectively. Meanwhile, offenders and religious devotees think subjectively and are thus incapable of being blamed or challenged. Therefore, this kind of thinking leads to religious inquiry and knowledge that are subjective-objective and objective-subjective.

To avoid a subjective-objective dichotomy and an objective-subjective dichotomy, the following cluster of concepts must be "intersubjective." The pattern of intersubjective thinking is a scientific mental state that enables a scientist or religious person to communicate between the subjective and objective worlds when confronted with the intricacies of life. Complex existence cannot be resolved only via a single discipline (mono discipline) or by the linearity of the area of research that gives rise to subjectivity or objectivity. This suggests that an intersubjective style of knowing may be achieved by an integration-interconnection strategy, specifically by merging or connecting diverse disciplines.

The third is Creative Imagination (Creative Imagination), even though inductive and deductive logic has adequately characterized some parts of science's operation. However, the representation omits the creative imagination of the scientist's role in the scientific process. Throughout their academic careers, scientists or scholars (doctoral programs) are required to develop novel findings or theories. This is an educational exercise (contribution to knowledge). The discovery or development of a new theory occurs due to a researcher's efforts to link previously unconnected topics online. Subjectivity or fully objective reality is produced only by (mono discipline) or the linearity of the domain of investigation. This shows that an integration-interconnection technique, notably combining or linking disparate disciplines, may be used to produce an intersubjective mode of knowing.

According to Koestler and Ghiselin, the presence and function of creative imagination in the worlds of science and literature are often related to attempts to reconcile two different framework conceptions. He synthesizes two distinct entities and then reassembles them into a new whole by rearranging the original ingredients into a new configuration combination. Indeed, new theories often develop due to an attempt to link two unrelated phenomena.

This imaginative creativity must be employed in intellect, legislation, and education. Today, the bravery to reconsider religion and Islamic education's beliefs and practices is required to aid the continuous process of activities. For instance, religious or Islamic education should no longer be taught in an environment devoid of discourse, interaction, or input from other disciplines.

Prototype Curriculum Reviewed In Light Of The Integration-Interconnection Approach Prof M Amin Abdullah

The prototype curriculum is a curriculum developed by the government, namely the Ministry of Education and Culture, to aid in learning recovery after the epidemic of Covid-19. The qualities of this curriculum and its components make it possible for implementation in present educational units. Additionally, since the nature of life today

is so complicated due to fast technological advancements, it necessitates a new curriculum capable of meeting contemporary problems, specifically our prototype curriculum.

Prior to implementing and implementing this prototype curriculum, it is required to analyze it first to ensure that there is an evaluation that attempts to test this curriculum conceptually. Practically speaking, surveys will need to be conducted at different educational institutions that apply this prototype curriculum to accomplish educational objectives. The author applies Prof. M Amin Abdullah's integration-interconnection method to the theoretical examination of this curriculum.

First, the presence of a prototype curriculum is justified by the fact that the previous curriculum, specifically the 2013 curriculum, is not operating optimally and requires evaluation to generate a new curriculum, namely this prototype curriculum. This curriculum is a supplement to the primary 2013 curriculum that was used. In terms of the integration-interconnection strategy, this already incorporates one of the approach's three core concepts, namely creative imagination. This suggests that Kemendikbudristek is courageous, skillful, and imaginative in designing a new curriculum for Indonesian education (Kementerian Pendidikan Kebudayaan Riset dan Teknologi, 2021).

Second, in terms of the qualities of the curriculum that are centered on character development or projects. In its implementation, a teacher does not necessarily use a one-way or lecture-based approach of instruction in order to instill a deductive mentality or force students to accept just one reality. Additionally, while developing characters in the form of a project, it employs a variety of software approaches that may be acquired via experience and integrates many disciplines previously studied. This indicates that in respect to the integration-interconnection method, there are parallels in that one of the approaches' buzzwords is to enter one another; only when one science and another have a relationship or penetrate one another will we be able to solve the issue—rising complexity of issues.

The third refers to school flexibility in terms of curriculum development. This allows schools to experiment and be creative when developing a curriculum to be applied for one year. The objective is to develop students who adhere to the established curriculum and are capable of benefiting the community, country, and state. Compared to the integration-interconnection approach, this curriculum is similar in that it emphasizes freedom in developing a goal to be accomplished, with the specific goal of instilling an intersubjective mentality, or dialogue between the subjective and objective worlds, in order to comprehend the increasingly complex problems of life.

The fourth is connected to abolishing high school majors in science, social studies, or language specialization. This elimination is necessary because specialization results in what is referred to as prestige and hierarchy, allowing students to tailor their studies to their requirements. Naturally, this integration-interconnection method contributes to developing an intersubjective mentality, and the interaction between one scientific field and another is related and dialogical.

The prototype curriculum has a fundamental goal: to eliminate linearity and to implement the notion of the link between two sciences. Additionally, to assist in resolving current difficulties, what is required is not scientific monodisciplines but scientific integrations or topic selection flexibility. Of course, any new curriculum or technique has a flaw and is not necessarily ideal; it requires ongoing development with input from multiple parties to accomplish a worthwhile purpose, namely assisting in the resolution of issues that arise in human existence.

Conclusion

The curriculum is critical in assisting the educational process in terms of teaching and learning, creating attitudes, knowledge, and abilities, and assisting students in responding to contemporary concerns. The curriculum will evolve in response to changing circumstances. Since 1947, 1952, 1964, 1975, 1984, 1994, 2004, 2006, and 2013, Indonesia has developed curriculums, with the most recent being a prototype curriculum. The curriculum's evolution may be summarized in three stages: the Old Order Period (Curriculum 1947, 1952, and 1964), the New Order Period (Curriculum 1968, 1975, 1984, and 1994), and the Reformation Period (Curriculum 1968, 1975, 1984, and 1994). (Curriculum 2004, 2006, 2013, and the Prototype Curriculum). A new offer to assist in the restoration of learning after the Covid-19 epidemic. This curriculum supplements the 2013 curriculum, containing distinct features and material. This prototype curriculum demonstrates the following characteristics: application of project-based learning or development of soft skills or student character, emphasis on key content, and flexibility for schools in implementing the curriculum over three years. Additionally, this curriculum is unique in that it eliminates high school majors in science, social studies, or language specialty and makes informatics a compulsory subject due to its importance in creating increasingly advanced technology.

Prof. M Amin Abdullah's integration-interconnection technique is a The solutions to human issues are becoming more complicated. This technique seeks to eliminate mono discipline in resolving issues that arise. Moreover, eliminating the role of an autonomous discipline

implies abolishing the necessity for other disciplines. There are three critical components to this technique that must be mastered and applied: penetration, intersubjective testability, and creative imagination. When these three terms are used together, it becomes simpler to handle difficulties that arise in today's increasingly complicated world.

The existence of a prototype curriculum reviewed using an integration-interconnection approach demonstrates a common understanding, namely the elimination of scientific linearity or monodisciplinary, the promotion of interactions between scientific disciplines, and the use of imagination and creativity to assist in resolving real-world problems.

Bibliography

- Abdullah, M. Amin. (2020). *Multidisiplin, Interdisiplin, & Transdisiplin: Metode Studi Agama & Studi Islam Di Era Kontemporer*. Yogyakarta: IB Pustaka.
- Amin Abdullah, Mohd. (2006). *Islamic Studies di Perguruan Tinggi: Pendekatan Integratif-Interkonektif*. Yogyakarta, Indonesia: Pustaka Pelajar.
- Andiyan, Andiyan, & Cardiah, Tita. (2021). Application of Contemporary Architecture in the Transfer Hub High Land Borobudur Building. *Civil Engineering and Architecture*, 9(7), 2353–2361. <https://doi.org/10.13189/cea.2021.090722>
- Andiyan Andiyan, Putra, Raditya Mandala, Rembulan, Glisina Dwinoor, & Tannady, Hendy. (2021). Construction Project Evaluation Using CPM-Crashing, CPM-PERT and CCPM for Minimize Project Delays. *Journal of Physics: Conference Series*, 1933(1), 12096. IOP Publishing.
- Andiyan, Andiyan, Rusmana, Dadan, Hari, Yulius, Sitorus, Michael, Trinova, Zulvia, & Surur, Miftahus. (2021). Disruption of IoT in Adapting Online Learning during the Covid-19 Pandemic. *International Journal of Early Childhood Special Education*, 13(2), 1331–1341. <https://doi.org/10.9756/INT-JECSE/V13I2.211181>
- Bazerman, C., & Russell, D. (2020). *Landmark Essays on Writing Across the Curriculum: Volume 6*. Retrieved from <https://books.google.com/books?hl=en&lr=&id=1GIPEAAAQBAJ&oi=fnd&pg=PP1&dq=landmark&ots=1kZ7AuW0CA&sig=ORPsv5z0IImwrj8w64PbjhZ5fzg>
- Beerwinkle, Andrea L., Wijekumar, Kausalai, Walpole, Sharon, & Aguis, Rachael. (2018). An analysis of the ecological components within a text structure intervention. *Reading and Writing*, 31(9), 2041–2064. <https://doi.org/10.1007/s11145-018-9870-5>
- Bogaerds-Hazenberg, Suzanne T. M., Evers-Vermeul, Jacqueline, & van den Bergh, Huub. (2020). A Meta-Analysis on the Effects of Text Structure

- Instruction on Reading Comprehension in the Upper Elementary Grades. *Reading Research Quarterly*, 1–28. <https://doi.org/10.1002/rrq.311>
- Cardiah, Tita, Andiyan, Andiyan, & Rahma, Amelinda. (2021). Implementation of Health Protocols at Mosques during the Covid-19 Pandemic in the city of Bukittinggi. *Review Of International Geographical Education*, 11(5), 3765–3771. <https://doi.org/10.48047/rigeo.11.05.260>
- Darge, K. (2015). Reply to Dr. Walsh regarding curriculum design for pediatric radiology in Ethiopia. *Pediatric Radiology*, Vol. 45, pp. 298–299. <https://doi.org/10.1007/s00247-014-3114-x>
- Deng, Z. (2020). Knowledge, content, curriculum and didaktik: Beyond social realism. In *Knowledge, Content, Curriculum and Didaktik: Beyond Social Realism*. <https://doi.org/10.4324/9781351118941>
- DuBose-Morris, R. (2021). Building telehealth teams of the future through Interprofessional curriculum development: a five-year mixed methodology study. *Journal of Interprofessional Care*. <https://doi.org/10.1080/13561820.2021.2005556>
- Ghosh, Arundhati, Parrish, Kristen, & Chasey, Allan D. (2015). Implementing a vertically integrated BIM curriculum in an undergraduate construction management program. *International Journal of Construction Education and Research*, 11(2), 121–139.
- Huang, Y. (2020). Curricularface: Adaptive curriculum learning loss for deep face recognition. *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition*, pp. 5900–5909. <https://doi.org/10.1109/CVPR42600.2020.00594>
- Indah, Fenita Purnama Sari, Cardiah, Tita, Rahmat, Azwar, Sulandjari, Kuswarini, Andiyan, Andiyan, & Hendayani, Nenden. (2022). Effect of Community-Based Total sanitation Program with diarrhea Incidents in toddler at communities near rivers. *Materials Today: Proceedings*.
- Kementerian Pendidikan Kebudayaan Riset dan Teknologi. (2021). *Kebijakan Kurikulum Untuk Membantu Pemulihan Pembelajaran*. Kementerian Pendidikan Kebudayaan Riset dan Teknologi.
- Leung, C. (2020). Enriching home language environment among families from low-SES backgrounds: A randomized controlled trial of a home visiting curriculum. *Early Childhood Research Quarterly*, 50, 24–35. <https://doi.org/10.1016/j.ecresq.2018.12.005>
- Luckett, K. (2020). Reframing the curriculum: a transformative approach. *Critical Studies in Education*, 61(1), 50–65. <https://doi.org/10.1080/17508487.2017.1356341>
- Merchant, Haider, & Nyamapfene, Taona. (2020). An evaluation of educational interventions aimed at preparing medical students for discharge summary writing: a rapid review of the literature. *Irish Journal of Medical Science*, 190(2), 523–530. <https://doi.org/10.1007/s11845-020-02325-0>
- Moleong, Lexy J. (2007). *Qualitative Research Methodology*. Yogyakarta: Gadjah Mada University Press.
- Muhajir, A. (2020). Approach to the development of multicultural education curriculum in darul hikmah modern Islamic boarding school

- Tulungagung, Indonesia. *Universal Journal of Educational Research*, 8(5), 1842–1847. <https://doi.org/10.13189/ujer.2020.080520>
- Nuland, S. E. Van. (2020). STEM crisis teaching: Curriculum design with e-learning tools. *FASEB BioAdvances*, 2(11), 631–637. <https://doi.org/10.1096/fba.2020-00049>
- Ritonga, M. (2021). The management of arabic language and the yellow book curriculum planning at islamic boarding schools in respond to the freedom to learn education system. *Journal of Management Information and Decision Sciences*, 24, 1–10. Retrieved from https://api.elsevier.com/content/abstract/scopus_id/85112799543
- Rosyidah, Masayu, Khoirunnisa, Ninin, Rofiatin, Umi, Asnah, Asnah, Andiyan, Andiyan, & Sari, Dyana. (2022). Measurement of key performance indicator Green Supply Chain Management (GSCM) in palm industry with green SCOR model. *Materials Today: Proceedings*.
- Setiyowati, Eppy, Agustina, Ayuda N., Yuddha, Ayi S., Muchtar, Muchtar, Fatmawati, Endang, & Andiyan, Andiyan. (2022). Self-Management To Change Of Perception And Clinical And Pharmacological Knowledge Of Covid 19. *Journal of Pharmaceutical Negative Results*, 13(2), 1.
- Silva, J. A. Teixeira da. (2020). Curriculum vitae: Challenges and potential solutions. *KOME*, 8(2), 109–127. <https://doi.org/10.17646/KOME.75672.52>
- Succi, M. D. (2018). Medically Engineered Solutions in Health Care: A Technology Incubator and Design-Thinking Curriculum for Radiology Trainees. *Journal of the American College of Radiology*, 15(6), 892–896. <https://doi.org/10.1016/j.jacr.2018.02.017>
- Sugiyono. (2012). *Qualitative Quantitative Research Methods and R&B*. Bandung: CV. Alfabeta.
- Sulandjari, Kuswarini, Putra, Adi, Sulaminingsih, Sulaminingsih, Adi Cakranegara, Pandu, Yusroni, Nanang, & Andiyan, Andiyan. (2022). Agricultural extension in the context of the Covid-19 pandemic: Issues and challenges in the field. *Caspian Journal of Environmental Sciences*, 20(1), 137–143. <https://doi.org/10.22124/cjes.2022.5408>
- Tahirsylaj, A. (2020). The unfinished business of defining competences for 21st century curricula—a systematic research review. *Curriculum Perspectives*, 40(2), 131–145. <https://doi.org/10.1007/s41297-020-00112-6>
- VanTassel-Baska, J. (2021). Content-based curriculum for high-ability learners. In *Content-Based Curriculum for High-Ability Learners*. <https://doi.org/10.4324/9781003233824>
- Walsh, K. (2015). Curriculum design for pediatric radiology in Ethiopia. *Pediatric Radiology*, Vol. 45, p. 297. <https://doi.org/10.1007/s00247-014-3089-7>
- Wang, W. (2020). From few to more: Large-scale dynamic multiagent curriculum learning. *AAAI 2020 - 34th AAAI Conference on Artificial Intelligence*, pp. 7293–7300. Retrieved from https://api.elsevier.com/content/abstract/scopus_id/85103867731
- Waterman, K. P. (2020). Integrating Computational Thinking into Elementary Science Curriculum: an Examination of Activities that Support Students'

Computational Thinking in the Service of Disciplinary Learning. *Journal of Science Education and Technology*, 29(1), 53–64.
<https://doi.org/10.1007/s10956-019-09801-y>

Zhang, J., Zhou, D., Wang, R., & Song, L. (2021). Core Content Selection and Textbook Design for High School Mathematics. *School Mathematics Textbooks* https://doi.org/10.1142/9789814713955_0001