CURRICULUM DESIGN FOR DEVELOPING 21ST-CENTURY SKILLS: A CASE STUDY OF AN ISLAMIC HIGH SCHOOL

KREIRANJE NASTAVNOG PLANA I PROGRAMA ZA RAZVOJ VJEŠTINA 21. STOLJEĆA: STUDIJA SLUČAJA ISLAMSKE SREDNJE ŠKOLE

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ABSTRACT

Education in the 21st century requires a curriculum responsive to students' needs in developing skills relevant to the times. This study aims to explore the curriculum design for 21st-century skills development in an Islamic high school in West Bandung Regency, Indonesia. The selection of this school as the research subject is based on its curriculum development, which allegedly equips students with several skills, including 21st-century skills. This study employed a qualitative approach with a case study design. Data was collected through observation, interviews, and document analysis. Data analysis techniques included reduction, display, verification, and conclusion drawing. The results indicate that this school implements a combined (parallel) curriculum design combining the Emancipated Curriculum, Typical School Curriculum, Cambridge Curriculum, and Islamic Boarding Curriculum integrated with the Child-Friendly School, Adiwiyata School, and Disaster Safe Education Unit programs. This curriculum design places much emphasis on project-based learning, the use of digital media, lots of religious material, environmental awareness movements, and habituation activities. The application of this curriculum design plays a vital role in developing 21st-century skills in terms of competitiveness, piousness, leadership, management, critical thinking, creativity, problem-solving, collaboration, communication, foreign language skills, digital literacy, entrepreneurship, caring attitude, environment, and awareness of sustainable lifestyle. This finding implies the importance of adopting a holistic approach in curriculum design to develop students prepared to face the demands of the modern world. The study contributes insights into best practices in curriculum design for developing 21st-century skills in senior high schools.

Key words: 21st-century skills, curriculum design, senior high school

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SAŽETAK

Edukacija u 21. stoljeću zahtijeva kurikulum koji odgovara potrebama učenika u razvoju vještina relevantnih za savremeno doba. Ova studija ima za cilj istražiti dizajn kurikuluma za razvoj vještina 21. stoljeća u islamskoj srednjoj školi u regiji West Bandung, Indonezija. Odabir ove škole kao subjekta istraživanja temelji se na razvoju njenog kurikuluma, za koji se navodi da učenicima pruža niz vještina, uključujući i one koje su prepoznate kao ključne za 21. stoljeće. U istraživanju je primijenjen kvalitativni pristup s dizajnom studije slučaja. Podaci su prikupljani putem posmatranja, intervjua i analize dokumenata. Tehnike analize podataka uključivale su redukciju, prikazivanje, verifikaciju i donošenje zaključaka. Rezultati pokazuju da ova škola primjenjuje kombinovani (paralelni) dizajn kurikuluma koji uključuje Emancipirani kurikulum, Tipični školski kurikulum, Kembridž kurikulum i Kurikulum islamskog internata, integrisan s programima Škole prilagođene djeci, Adiwiyata škole i Jedinice za obrazovanje sigurno u slučaju katastrofa. Ovakav dizajn kurikuluma stavlja snažan naglasak na učenje temeljeno na projektima, korištenje digitalnih medija, obilje vjerskih sadržaja, pokrete za podizanje svijesti o okolišu i aktivnosti usvajanja navika. Primjena ovog kurikuluma ima ključnu ulogu u razvoju vještina 21. stoljeća, kao što su konkurentnost, pobožnost, liderstvo, upravljanje, kritičko mišljenje, kreativnost, rješavanje problema, saradnja, komunikacija, poznavanje stranih jezika, digitalna pismenost, poduzetništvo, osjećaj za brigu, zaštitu okoliša i svijest o održivom načinu života. Ovo otkriće ukazuje na značaj usvajanja holističkog pristupa u dizajnu kurikuluma kako bi se razvili učenici spremni da odgovore na zahtjeve savremenog svijeta. Studija doprinosi uvidima u najbolje prakse u dizajnu kurikuluma za razvoj vještina 21. stoljeća u srednjim školama.

Ključne riječi: vještine 21. stoljeća, dizajn kurikuluma, srednja škola

INTRODUCTION

Education in the 21st century demands a transformation in curriculum design to develop skills that are relevant to the changing needs of the times. The concept of 21st-century skills includes aspects such as critical thinking, creativity, communication, collaboration, digital literacy and problem-solving, which are key to success in complex and changing work environments and society (Kim & Seidman, 2019). Therefore, curriculum development that takes into account 21st-century skills is crucial in modern education.

In the face of complex global dynamics and evolving labour market needs, educational curricula need to be updated to adapt learning to the challenges of the times. Effective curriculum design should be able to integrate 21st-century skills into every aspect of learning, from program structure to teaching methods (Boluk, 2023). This includes developing learning strategies that emphasize active, collaborative and real-world relevant learning experiences so that students can develop the skills needed to succeed in the future (Alpaydın & Demirli, 2022).

Despite much discussion about the importance of integrating 21st-century skills into the curriculum, its implementation still needs to be improved for many educational institutions. The lack of a deep understanding of how to design an effective curriculum to develop 21st-

century skills is often a bottleneck in the curriculum development process (Kim & Seidman, 2019). Therefore, in-depth research on effective curriculum design to develop 21st-century skills in educational settings is crucial.

In this context, this research aims to explore the application of curriculum design in an Islamic high school. This school was chosen as the object of research because it implements a unique curriculum design that has the potential to develop a number of student and teacher skills. A study revealed that the learning activities implemented in this school were instrumental in developing a number of student skills, including 21st-century skills (Sinta, Ferahenki, et al., 2024). Through a better understanding of how the curriculum is designed to facilitate the development of 21st-century skills, this research can provide valuable insights for curriculum development in other schools and help prepare students to face future challenges more readily.

MATERIAL AND METHODS

This research uses a qualitative approach. Qualitative research is a research approach that aims to understand certain events, situations, groups, or social interactions; it can also be interpreted as an investigative process where researchers slowly interpret a social phenomenon (Creswell, 2017). The research design used is a case study design. Case study design is research that involves the process of examining a case in detail and holistically using qualitative data and several other methods (Johnson & Christensen, 2014). It can answer exploratory, descriptive, and explanatory research questions with a focus on the unity of the case in real life. The case study design was chosen because this research aims to explore efforts to improve 21st-century skills through curriculum design in a particular school.

This research was conducted at an Islamic high school in West Bandung, Indonesia, between 2022-2023, focusing on the implementation of the curriculum in grades 10 and 11. Data collection techniques in this study used observation, interviews, and documentation studies in line with the concept that data collection methods in qualitative research are carried out in combination (triangulation), which includes observation, interaction with informants through interviews, and review of written material or documents (documentation) (Panorama & Muhajirin, 2017). Therefore, the research instruments used are research grids, observation guidelines, interview guidelines, and documentation study guidelines.

The observation and interview techniques that researchers conducted referred to (Sugiono, 2017). In the observation technique, researchers use participatory observation because they are involved in daily activities in places used as sources of research data. The type of participation is moderate, where the researcher does what the source does, but not entirely, so that while maintaining most of the naturalness of the situation.

Then, in the interview technique, researchers used a semi-structured interview, which is a more flexible interview, to get a broader view. Meanwhile, the documentation study was conducted by reviewing written materials in the draft lesson plan , meeting minutes, and important documents such as evaluation results and activity accountability reports. The data was then tested for prerequisite analysis by conducting triangulation checking techniques and increasing persistence in analyzing the data so that the data needed was valid.

Data analysis techniques are carried out continuously from the beginning until completion. The steps in analyzing data carried out by researchers begin with data transcription, data reduction process, data display, verification, and conclusion making. This method is in accordance with the guidelines provided by Miles and Huberman (Sugiono, 2017). Data transcription is presented in the form of field notes, interview notes, and document review notes, which are then subjected to data reduction. Researchers reduce data by selecting, sorting and summarizing data in accordance with the research objectives. The next stage of the reduced data is then concluded and described descriptively.

RESULTS AND DISCUSSION

The results of this study are presented in table 1 and 2.

Table 1. Curriculum Design Applied in This School

Information	Findings
Based on documentation studies, observations, results of interviews with teachers and students	This school implements a combined curriculum design, which consists of: 1. Emancipated Curriculum 2. Cambridge curriculum 3. School Specific Curriculum 4. Typical Boarding School Curriculum Integrated curriculum with Child-Friendly School, Adiwiyata School, and Disaster Safe Education Unit programs.

Table 2. 21st Century Skills Trained and Developed

Information	Findings
Based on documentation studies, observations, results of interviews with teachers and students	The implementation of a combined curriculum design in this school trains teachers and students in the essential 21st-century skills of critical thinking, creativity, problem-solving, collaboration spirit, communication, foreign language skills, digital literacy, entrepreneurship, environmental awareness, and sustainable lifestyle.

Curriculum Design Applied in This School

This school implements a combined curriculum, which combines several curricula. In scientific language, this combined curriculum can be called a parallel curriculum. Hathcock

(2018) explains that parallel curriculum refers to the use of several kinds of curriculum that run concurrently to meet student learning needs. The parallel curriculum serves to extend or deepen certain aspects of the core curriculum. This school uses a combined curriculum design with the aim of achieving the vision and mission of the school/institution. As a private school, they are determined to have a number of advantages in order to compete with other schools and attract students to study there. Through the implementation of a combined curriculum design, they are determined to equip students with a variety of superior skills to be able to compete in competitions, college entrance tests, and real-life challenges in society. Indeed, instead of relying on one curriculum alone, the use of a parallel curriculum can adequately meet the needs of all learners (Hathcock, 2018). The benefits of a parallel curriculum are enhanced learning, student motivation, content reinforcement, and effective organization for successful partnerships between subjects (Hastie, 2013). The combined curriculum implemented in this school is then translated into curricular, co-curricular and extracurricular learning activities. Curricular is understood as organized teaching in the classroom (Clegg et al., 2009). Cocurricular is generally defined as supplementary teaching outside the classroom, such as journal work or publication of papers (Theeke & Hall, 2021). In this context, cocurricular learning includes habitual activities and routine programs that provide opportunities for students to put what they learn into practice in their daily lives. Co-curricular activities occur outside of regular hours and aim to provide students with opportunities to develop various skills such as communication skills, leadership, discipline and other practical skills (Bruni-Bossio & Delbaere, 2020). Extracurricular refers to learning activities outside regular hours that are not directly tied to the core academic curriculum, such as clubs and organizations (Mourgela & Pacurar, 2017). An overview of the implementation of the combined curriculum can be seen in the following chart:
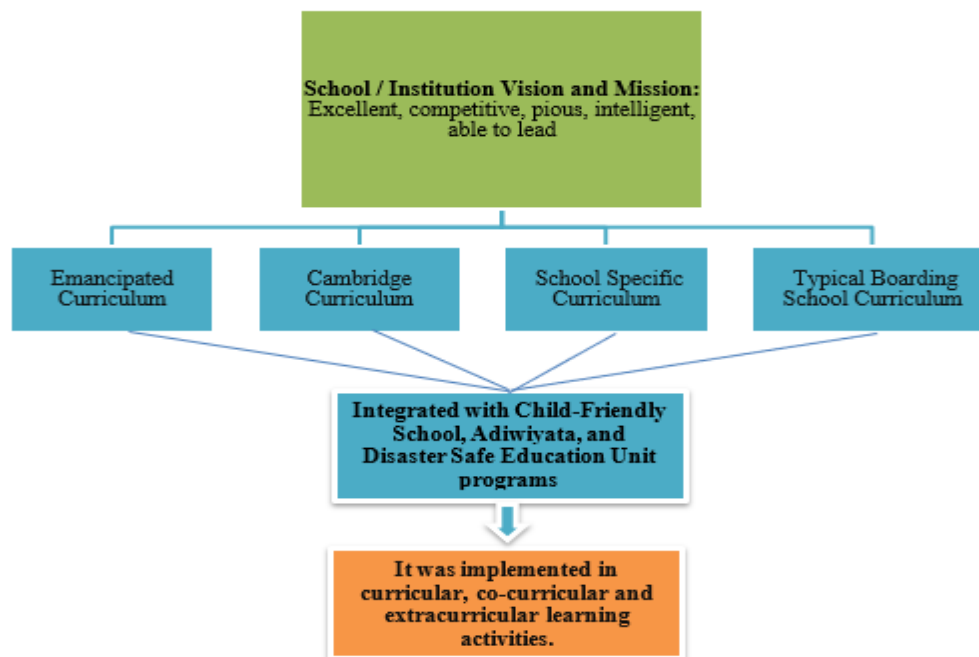

Chart 1. Overview of Curriculum Design Implementation

Curriculum design standards should fulfil four requirements. The first is the subject matter, which includes subjects that must be learned and combined with disciplines. Second is competency, which is the ability expected from curriculum and learning. Third, humanism includes the traits studied and wanted to be formed by the curriculum. Fourth, social reconstruction means the curriculum is applied based on social or community needs (Andhara et al., 2020). Referring to these requirements, the technical implementation of curriculum design in this school is mapped as follows:

Table 3. Application of Curriculum Design Implemented in This School

Number	Curriculum Name	Subject Matter	Competency (Ability to be formed)	Humanistic (Traits to be formed)	Social Reconstruction (Social needs analysis)
1	**Emancipated Curriculum.** It is positioned as the core curriculum	Applied in all subjects	Mastery of science, technology and essential 21st-century skills	Smart, capable, skillful.	The need for 21st-century skills development
2	**Cambridge Curriculum,** as an additional curriculum.	It is focused on English, Math, Biology, Chemistry, and Physics subjects first.	English language mastery, understanding of exact subjects using English, and critical thinking skills.	Smart	The need for critical thinking skills, English and competitiveness
3	**School Specific Curriculum,** as a specialized curriculum.	*Basic life skill*	Management skills, discipline, talent and interest channelling	Able to lead	The need for pious, intelligent and skillful leaders
4	**Typical Boarding School Curriculum,** as an additional curriculum.	Arabic, Tahfidz, Aqidah Akhlak, Sirah, Hadith, Fikih subjects.	Mastery of Arabic and Sharia sciences	Pious	The need for regeneration that is pious and has an understanding of Sharia

Table 4. School Programs Integrated with the Curriculum

Number	Program Name	Subject Matter	Activity Form	Competency (Ability to be formed)	Humanistic (Traits to be formed)	Social Reconstruction (Social needs analysis)
1	Child Friendly School Program	All subjects	Overall learning activities in the classroom and practice outside the classroom.	Emotional well-being	Empathy and student engagement	The need for protection, comfort, and security.
2	Adiwiyata School Program	All subjects	Overall learning activities in the classroom and practice outside the classroom.	Environmental literacy	Concern for the environment	The need for environmental conservation efforts
3	Disaster Safe Education Unit Program	All subjects	Disaster mitigation education	Disaster preparedness	Vigilance	Need for disaster mitigation education

Details regarding the implementation of the curriculum design are as follows:

a) Emancipated Curriculum

The Emancipated Curriculum in this school serves as the core curriculum. Every administration of learning planning, implementation, and evaluation is prepared according to the provisions of the Emancipated Curriculum. The Emancipated Curriculum is a curriculum

established by the Indonesian government starting in 2022/2023 at the primary and secondary education levels. This Curriculum has a flexible nature that is character and competency-based as well as creativity-based (Mulyasa, 2023). The Emancipated Curriculum aims to equip students with skills to be competitive in markets 4.0 and 5.0. The main characteristics of the Emancipated Curriculum are as follows: First, it emphasizes project-based learning to develop soft skills and characters, which include faith, piety, noble character, global diversity, cooperation, independence, critical reasoning, and creativity. Second, it focuses on essential materials that provide sufficient time for in-depth learning of basic competencies such as literacy and numeracy. Third, teachers have the flexibility to conduct learning in accordance with student abilities and local content (Hattarina et al., 2022).

b) Cambridge Curriculum

The Cambridge curriculum is an international curriculum designed by Cambridge Assessment International Education, which is globally recognized and has been adapted to international standards for education. This Cambridge curriculum has been used in many countries around the world as the main curriculum or supporting curriculum (Simanjuntak et al., 2022). The main characteristics of the Cambridge Curriculum are developing students' interests and talents, speaking English, having an international perspective, modern and up-to-date education, and training students' confidence (Ramadianti, 2023). The Cambridge Curriculum in this school is an additional curriculum that complements the core curriculum applied to certain subjects or fields. The aim is to broaden students' understanding of certain areas that still need to be fully covered in the core curriculum. In this school, the Cambridge Curriculum is only applied to the subjects of English, Biology, Physics, Chemistry and Mathematics.

c) School-specific Curriculum

The school-specific curriculum serves as a special curriculum, which is a curriculum specifically owned by this school. This school-specific curriculum includes: First, there are tutoring activities for grade 12 students in the afternoon in preparation for college tests. Second, there is a structured task of making scientific papers, whose results are judged. Third, there are habituation activities such as daily morning roll calls, recitation of Asma Al-Husna, and five daily prayers in the congregation. Fourth, extracurricular learning activities such as scouting, archery, tapak suci, basketball, barista, videography, and saman. Fifth, the learning of the Intra-School Student Organization (OSIS). Sixth, there is an annual flagship program in the form of competitions and talk shows aimed at attracting large numbers of participants. Seventh, there is an international program, namely learning Arabic and Tahfidz, in Jordan for 3 months. Each school has its characteristics, local values, culture, and achievement targets. Therefore, the school-specific curriculum plays an important role as a guideline for carrying out the educational process in accordance with the needs of students and the achievement targets expected by the school (Huda, 2017).

d) Typical Boarding School Curriculum

As a boarding school, this school has a boarding-based curriculum. The curriculum includes Arabic language learning, Tahfidz, Aqidah Akhlak, Sirah, Hadith, and Fikih. Arabic language learning and Tahfidz are carried out after the morning prayer (05.00-06.00 WIB) and after maghrib (18.30-20.00), while other boarding school subjects are allocated during school hours (range 08.00-15.00 WIB). Huda (2017) argues that schools under the auspices of the Islamic Education Foundation can develop a pesantren (religious) curriculum in accordance with the vision, mission and educational objectives of the foundation and the school by paying attention to the provisions prepared by the Ministry of Religion. A typical pesantren curriculum can equip students with a good religious understanding so that it can be integrated between mastery of science life skills with moral and spiritual attitudes (Sinta, Firdaus, et al., 2024).

e) Curriculum Integration with Child-Friendly School, Adiwiyata, and Disaster Safe Education Unit Programs

Educational programs such as Child-Friendly School, Adiwiyata, Disaster Safe Education Unit, and Cambridge reflect various approaches to improving the quality of education. Child-friendly Schools and Adiwiyata focus on social and environmental aspects (Yosada & Kurniati, 2019; Zamzam & Arifiah, 2018),. The Disaster Safe Education Unit adds a character dimension by integrating environmental and moral values in the context of disaster while Cambridge offers an international curriculum that emphasizes the principles of being confident, responsible, reflective, innovative, ready to make a difference, and strengthening their English language skills (Christiana et al., 2022). Through the implementation of these programs, schools can create a holistic, sustainable learning environment that upholds noble character values and is in line with the demands of the times.

2. 21st Century Skills Trained and Developed

The combined and integrated curriculum design with the Child-Friendly School, Adiwiyata, and Disaster Safe Education Unit programs creates derivative learning activities such as First, curricular learning that nurtures students' needs, safety, and comfort and emphasizes project-based learning. Second, co-curricular learning in the form of assignments for making scientific papers, habituation activities that train leadership and discipline, and annual routine programs to hold large-scale competitions and talk shows. Third, extracurricular activities such as scouting, archery, saman, barista, basketball, videography, and cooking. Fourth, additional learning activities in the morning and evening in the form of learning pesantren material. Fifth, every learning activity is associated with environmental care, child-friendly, and disaster awareness movements.

The implementation of the combined curriculum design, apart from aiming to foster students to be competitive, have excellence in mastering science and technology, be pious, intelligent and able to lead, also aims to train and develop 21st-century skills for teachers and students. The 21st-century skills that are trained and developed include:

a) Critical Thinking Skills

Critical thinking skills refer to the ability to analyze complex problems, investigate questions that do not have clear answers, analyze different points of view from sources of information, and draw appropriate conclusions based on evidence and reasoning (Tindowen et al., 2017). Teachers are encouraged to continue learning, attend training, make self-development efforts, analyze the skills needed in today's era, and increase creativity in creating learning innovations that are in accordance with the needs of the times for the need to develop 21st-century skills. Students are trained to think critically through Cambridge curriculum learning and the independent curriculum, which emphasizes project-based learning. In line with De Vivo (2022) by working on projects that require investigation, analysis and synthesis of information, students are trained to develop the ability to think critically.

b) Creativity

The implementation of an integrated curriculum design requires teacher creativity in implementing effective learning and integrating the various elements required. Teachers are encouraged to attend training and have the ability to create learning innovations according to the times and the targets set in the curriculum design. The ability of teachers to create learning innovations that follow the times trains teacher creativity. Before training students to be creative, teachers have to practice first. Meanwhile, students' creativity is trained through project-based learning and other assignment challenges. In line with Sinta et al. (2024), learning results show that teachers and students can display their creativity, as seen from the works produced through project-based learning. Van Laar et al. (2020) mentioned that creativity is necessary to achieve success.

c) Problem-solving

In individual and group learning activities, problem-based learning is implemented in addition to project-based learning. This combination of learning activities trains problem-solving skills.

d) Collaboration Skills

One of the derivatives of the learning program from the curriculum design implemented in this school is the emphasis on project-based learning. Project-based learning activities are often carried out in groups. Sinta et al. (2024) mentioned that this school often organizes collaborative project-based learning activities, which are project-based learning implemented by collaboration between several subjects and students working on their projects in groups. This approach encourages students to be actively involved in real projects that require cooperation (Genc, 2015). Examples of project-based learning implemented in this school are making bio pore holes, eco-bricks, recycling, composting, hydroponics, campaign posters, and making scientific papers. Project-based activities carried out in groups are very instrumental in developing collaboration skills.

e) Communication Skills

Problem- and project-based learning carried out in groups train communication skills. Working on projects in groups, students are invited to communicate effectively, share ideas, and resolve conflicts, thus training their communication and problem-solving skills (De Vivo, 2022). The communication skills trained in this school also include public speaking, negotiation, and interpersonal communication skills.

f) Foreign language skills (in this case, focusing on English and Arabic first).

English language skills are trained through learning the Cambridge Curriculum. Arabic language skills are trained by increasing the allocation of learning hours for Arabic. In addition, English and Arabic skills are trained through the implementation of language day schedules and international study programs in Jordan. Foreign language skills are becoming increasingly important to master because they allow one to expand social networks and open up better life opportunities (Marzuki, 2021).

g) Digital literacy

The need for the implementation of curriculum design in this school requires teachers to continue to learn and explore information through digital media. This certainly sharpens the teacher's digital literacy. Meanwhile, students' digital literacy skills are trained during the learning process. Learning activities in this school often use digital tools as learning support media, the use of which is regulated in a structured manner. Students' digital literacy skills are trained when working on online quizzes and project challenges, as well as student worksheets.

h) Entrepreneurship

Students' entrepreneurship skills are trained, especially when faced with holding major competitions and talk shows. Students practice looking for funds from sponsorship, selling, and so on. Geisinger (2016) argues that entrepreneurship, including technical skills, is one of the skills that need to be trained in an effort to prepare themselves to be competitive in the global market.

i) Environmental Awareness and Sustainable Lifestyle Awareness.

The parallel curriculum design integrated with the Adiwiyata School program creates environmentally sound learning. In-class material learning, practice, and project-based learning are often related to environmental issues and their solutions. This is very instrumental in developing an attitude of environmental care and awareness of sustainable lifestyles for the school community. In line with the results of Genc's (2015) research that project-based learning on environmental issues has a positive influence on students' environmental attitudes, students find this project-based learning approach useful, enhances creativity, encourages research, provides contextual learning and is relevant to daily life issues, and helps train critical thinking skills to find solutions to environmental problems.

j) Management

Learning activities in this school, from waking up to sleeping again, are so busy. Not to mention being active in competitions and organizational activities. This certainly trains the management skills of teachers and students, both time management and activity management. Geisinger (2016) suggests that management skills include intrapersonal skills that include self-management, time management, self-regulation, adaptability, and self-development. These management skills are essential for teachers and students to manage themselves effectively (Geisinger, 2016). 21st century skills include four main categories: cognitive skills, intrapersonal skills, interpersonal skills, and technical skills. Cognitive skills include problem-solving, critical thinking, and systemic thinking. Intrapersonal skills include self-management, time management, self-development, self-regulation, adaptability, and executive functioning. Interpersonal skills consist of complex communication and social skills, including collaboration, teamwork, cultural sensitivity, and dealing with diversity. Technical skills mainly focus on information literacy and research skills, as well as entrepreneurial skills and financial literacy (Geisinger, 2016). Referring to these opinions, the 21st-century skills trained and developed in this school have attempted to cover all four main categories of 21st-century skills. Although it still needs to be fully developed, at least there are still items that represent each category.

The 21st-century skills developed through the curriculum design in this school can be mapped in the following chart:
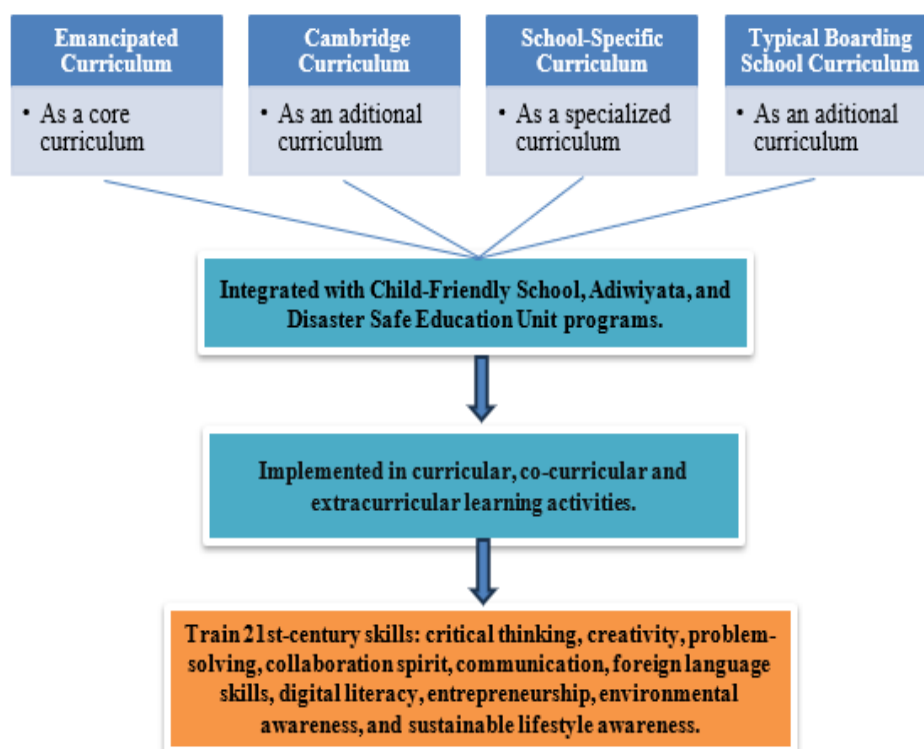

Chart 2. Overview of Curriculum Design in Developing 21-st Century Skills

CONCLUSION

The school implements a combined (parallel) curriculum design, using multiple curricula simultaneously. The parallel curriculum consists of the Emancipated Curriculum as the core curriculum. Second, the Special School Curriculum is exceptional (unique to this school). Third, the Cambrigde Curriculum and the Typical Kepesantrenan Curriculum are additional curricula. The unique and additional curricula complement and expand the core curriculum. In addition, the implementation of the parallel curriculum has also been adjusted to include Child-Friendly School, Adiwiyata, and Disaster Safe Education Unit programs. Ultimately, it produces curricular, co-curricular and extracurricular learning activities that are holistic, planned, organized, contextual, relevant to the needs of the times, has a strong foundation and are oriented towards realizing the school's vision and mission.

Implementing parallel curriculum design in this school results in learning activities such as: First, curricular learning emphasizes project-based learning. Second, curricular learning using English and Cambridge Curriculum materials in certain subjects. Third, additional learning in the mornings and evenings on pesantrenan materials. Fourth, co-curricular learning includes the work of Imiyah Writing, habituation, and practice of practicing what has been learned in real life. Fifth, every learning activity in and outside the classroom is associated with environmental care, child-friendly, and disaster awareness movements. The curriculum design that derives these learning activities is instrumental in developing 21st-century skills. These 21st-century skills include competitiveness, soleh, intelligence, ability to lead, critical thinking, creativity, problem-solving, collaboration, communication, foreign language skills, digital literacy, entrepreneurship, environmental awareness, and sustainable lifestyle awareness.

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