

# Realize Gold Indonesia In 2045 Through 21st Century Proficiency Education

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## Abstract:

Indonesian by Demographics have enormous human resources. In 2017, school age or pre-productive age, which is spread from early childhood, elementary, middle school, high school and tertiary education, has the largest portion compared to productive age and post-productive age in a conical manner. According to calculations, this pre-productive age will start to be productive in 2030 where college students start to be productive, followed by high school, junior high, elementary and early childhood students. The year 2045 is thought to be the peak time for the productivity of the Indonesian population, where the current primary and early childhood education age that dominates the population in this country will reach their productive age. In other words, starting in 2045, Indonesia will have a demographic bonus in human resources which is often referred to as the Demographic Bonus. In 2045, this Demographic Bonus can become capital or a burden for the country depending on how to prepare before 2045. It is hoped that the Demographic Bonus will become capital for this country so that the current generation is the golden generation in 2045 which is a generation of brilliant, potential, productive, literate, competent, character, and competitive. One of the most crucial efforts to realize the Demographic Bonus to become the golden generation in 2045 is through education. Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have

religious spiritual strength, self-control, personality, intelligence, noble character, and the skills needed by themselves and society. Education implies the awareness of all parties involved in this case the awareness of the nation to educate each other and provide exemplary students, so that students grow and develop in an environment that is fertile, literate, competent and with character. Through education, the self-potential of students in accordance with their nature is developed based on the basis they have through planned teaching so that they can live properly with the surrounding community, including the world community. The needs and demands of the world community that must be prepared through education to realize the golden generation in the 21st century in 2045, to be precise, are 21st century skills which are categorized into three broad categories, namely basic literacy, competence, and quality of character. 21st century skills will grow and develop in the golden generation candidates in 2045 through 21st century skills education.

Keywords: Demographic Bonus, Golden Indonesia, 21st Century Skills Education.

## INTRODUCTION

Indonesia is a country with the 4th largest population in the world after China, India and the United States. In 2016, Indonesia's population is around 4.4% of the world's population (CIA World Factbook, 2016). The relatively large population is a potential human resource, if prepared properly from now on. According to population data, in the period 2015-2045, the pyramid of Indonesia's population will be ideal with the majority of the population aged 25-45 years or productive age (Yuningsih, 2019). In 2017, school age or pre-productive age which is spread from early childhood, elementary, junior high school, high school, and tertiary education has the largest portion compared to productive age and post-productive age in a

conical manner (Irfani, Riyanti, Muharam, & Suharno, 2021) . According to calculations, this pre-productive age will start to be productive in 2030 where college students start to be productive, followed by high school, junior high, elementary and early childhood students. The year 2045 is thought to be the peak time for the productivity of the Indonesian population, where the current primary and early childhood education age that dominates the population in this country will reach their productive age. In other words, starting in 2045, Indonesia will have a demographic bonus in human resources which is often referred to as the Demographic Bonus (Prameswari, 2020)

The Demographic Bonus owned by the Indonesian state is a savings in human resources that have the potential to be developed into development capital (Triono, Margitama, Ubaidillah, & Setiani, 2022) . In 2045, this Demographic Bonus can become capital or a burden for the country depending on how to prepare it from now on. It is hoped that the Demographic Bonus will become capital for this country so that the current generation is the golden generation in 2045, which is a brilliant, potential, productive, literate, competent, characterized and competitive generation. One of the most crucial efforts to realize the Demographic Bonus to become the golden generation in 2045 is through education (Nurrohmah, Agustin, & Muhyidin, 2021) .

Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System Article 1 paragraph (1) states that education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control , personality, intelligence, noble character, and the skills needed by himself and society. Education implies the awareness of all parties involved in this case the awareness of the nation to educate each other and provide exemplary students, so that students grow and develop in an environment that is fertile, literate, competent and with character. (Suharsono, 2021) . Through education, the self-potential of students in accordance with their nature is

developed based on the basis they have through planned teaching so that they can live properly with the surrounding community, including the world community.

Skills that future generations should possess in order to be able to live properly in the world community in the 21st century, it consists of 16 skills which are categorized into three broad categories, namely the category of basic literacy abilities (foundational literacies), categories of competencies (competencies) better known as 21st Century Competencies, and category of character qualities (character qualities). The category of basic literacy skills consists of six literacy skills, namely language and literature literacy, numeracy, science, finance, information and communication technology, and culture and citizenship. The 21st Century competency category consists of four skills (4C/4K), namely critical thinking and problem solving, creative thinking and innovation, communication, and collaboration (Rahmawati & Khoirurrosyid, 2022). Meanwhile, the character quality category consists of six skills, namely curiosity, initiative, never giving up, adaptation, leadership, and socio-culture (World Economic Forum, 2015). These 21st Century skills must be developed from an early age in students through education, so that at their productive age they can live properly in the world community.

21st century skills will grow and develop in the golden generation candidates in 2045 through 21st century skills education. Three concepts of 21st century skills education have been adapted by the Ministry of Education and Culture of the Republic of Indonesia through the 2013 curriculum for Elementary Schools (SD/MI), Junior High Schools (SMP/MTs), Middle Schools Upper (SMA/MA) consists of 21<sup>st</sup> Century Skills (Setiawati, Mailani, Nst, & Surya, 2022), scientific approach (Rosyid, 2022) and authentic assessment (Apriyansyah & Kurniawaty, 2022). The three concepts are adapted to develop education towards a Creative Golden Indonesia in 2045 which is carried out to achieve conformity of the concept with the capacity of students and the competence of educators and education staff, so that the learning

process can be carried out to develop 21st century skills in students (Kurniawati & Sugiharto, 2022) .

### METHOD

The research design is a Literature Review. Literature Review is a description of theories, findings and other research materials obtained from reference materials to form the basis of research activities. Literature Review contains reviews, summaries, and the author's thoughts on several library sources (articles, books, slides, information from the internet, etc.) about the topics discussed. A good literature review should be relevant, current, and adequate. Theoretical basis, theoretical review, and literature review. There are several ways to conduct a literature review.

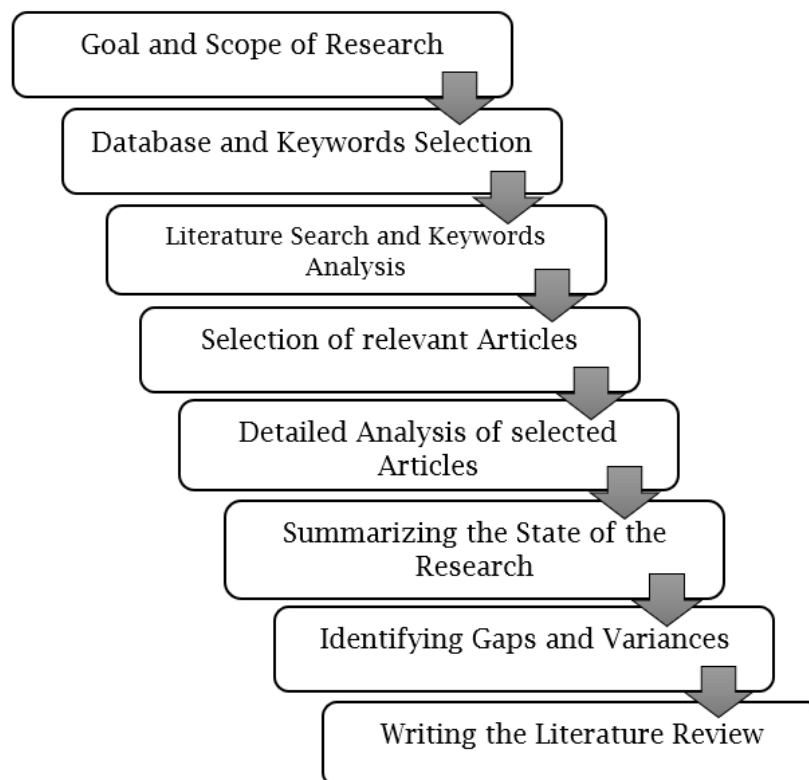


Figure 1. Literature Review Design

Related to this method, Wimbad, Djalante, & Mori, (2021) explained that the method of analysis is descriptive qualitative is a method that contains the process of analysis, description and summary of various

conditions taken from a collection of information derived from the results of interviews or direct observation in the field of the problem being researched. 3 Meanwhile, Sugiyono define descriptive qualitative research as a research method that uses the philosophy of postpositivism as its foundation, where it generally is used to conduct research in objective conditions with the researcher on duty become a key instrument. This study aims to make readers understand more about application comprehensive literature review. It is hoped that in the future the motivational readers will stronger and more in-depth insight to be able to conduct research with a variety of methods and concepts by applying literature review in their research properly and right, so that from here will give birth to quality writing

## **DISCUSSION**

According to Ki Hadjar Dewantara, education is divided into two, namely general education and special education. General education teaches students to be able to live in society, nation and state (knowledge for life), while special education teaches students to be ready to work. According to him, the Elementary School (SD) level is general education so that what is taught is knowledge about how students can live properly. The knowledge taught to students must be applicable in their lives so that it becomes meaningful, not only material-oriented (materialistic and intellectual), but also value-oriented and life skills so that students can live in prosperity not only physically, but also mentally (Tharo, 2021) .

Education is the main factor for the progress of a nation. The demographic bonus that is owned by the Indonesian people will manifest into a brilliant generation which is called the golden generation in 2045 through education. Ki Hadjar Dewantara has clearly distinguished between teaching and education. Teaching is more directed towards external well-being which is prepared through education centers, namely schools, while education leads to inner well-being which is prepared through the Three Education Centers, namely schools, families and communities ( Sunarya, Nurwahidin, &

Sudjarwo, 2022) . Thus, education has a deeper meaning than just teaching, and will not succeed when all educational responsibilities are handed over to schools. In fact, according to him, every self is a teacher for students who must set a good example so that education will succeed in growing a golden generation of hope for the nation (Samadhinata, 2022) .

The golden generation in 2045 is a generation that is brilliant, brilliant, valuable, competitive, literate, competent and has noble character. The golden generation of 2045 is the generation that has the skills needed so they can live in a global society. There are 16 skills that the next golden generation must have in order to be able to compete and live in the world community which are categorized into three broad categories, namely the category of foundational literacy , the category of competencies , and the category of character qualities . The category of basic literacy skills consists of six literacy skills, namely language and literature literacy, numeracy, science, finance, information and communication technology, and culture and citizenship. The 21st Century competency category consists of four skills (4C/4K), namely critical thinking and problem solving, creative thinking and innovation, communication, and collaboration. Meanwhile, the character quality category consists of six skills, namely curiosity, initiative, never giving up, adaptation, leadership, and socio-culture ( World Economic Forum , 2015).

Basic literacy skills are students' abilities to understand the meaning of texts which include the ability to read, write, use their potential and skills for their lives, and are the basis for lifelong learning. Language and literature literacy is needed for students to be able to communicate well and be understood so that it becomes the basis for communicating effectively in the world community using local languages, national languages, and global languages. According to Ki Hadjar Dewantara, global languages are very important for students to master by not leaving the national language and mother tongue in the least as proof of pride in their own nation and high nationalism (Wulan, 2023) . Numerical literacy is needed

so that students can communicate in the digital era which tends to be completely abstract, so mastery of mathematical basics such as addition, subtraction, multiplication and division is absolutely needed by future generations. (Janah, Suyitno, & Rosyida, 2019) . Financial literacy is needed so that students understand the importance of means of meeting needs and how best to use them in order to survive in an all-competitive world environment, including by reducing consumptive behavior that tends to lead to waste. Technology and information literacy is needed so that students can understand and use technology and information for something progressive and productive, so that technology and information provide positive benefits for them living in an all-ICT environment. Cultural literacy and citizenship are needed so that students can appreciate their own culture and the culture of other nations, and become good citizens and citizens of the world (Jaelani, 2022) .

In addition to being literate, future generations must also be competent in thinking and acting. The 21st century competencies that future generations must possess are critical thinking and problem solving, creativity and innovation, communication, and collaboration. Critical thinking and problem solving is the desire to find out through the process of analyzing systems thinking and evaluating a situation to make decisions through ideas, evidence, reasons, and information in an effort to solve problems ( Muryati, Sudiatmi, & Saptomo, 2022) . The critical generation has high metacognition abilities so that their critical thoughts are more controlled, they know when to speak, speak objectively according to facts, and have a positive impact on building and solving problems faced by themselves and society. Creativity and innovation are fluency and flexibility in thinking and expressing thoughts, as well as the ability to modify (elaborate) or create something new (original) in the form of ideas or concrete works that are beneficial to the world community. The creative and innovative generation is needed by the world community as the driving force for the world to keep going and survive in the midst of a world that is full of difficulties. Communication is the ability to



absorb, convey and connect information and ideas in various modes of language (Handini & Mustafa, 2020) . The communicative generation is needed by the world community so that every important message for the survival of the world can be understood by every individual who is part of the world community. (Trisnawati & Sari, 2019) . Collaboration is the ability to work in teams to achieve common goals, including the ability to build partnerships and consensus, as well as in preventing and managing conflicts. Collaborative generation is needed by the world community because in the future world problems will not be solved individually, but involve the thoughts and performance of each individual who is part of the world community. (Sofyan & Sanusi, 2023) .

Generations that are literate and competent will not provide much benefit without being accompanied by their character qualities. Character quality is the level of quality behavior that becomes an individual habit in their daily life. Characters that are urgently needed by future generations are curiosity, initiative, never give up, adaptation, leadership, and social culture. The next generation is a generation of scientists who have high curiosity so they have concern for world problems to contribute to solving them. They have the initiative to sacrifice and take part in the world community with a noble goal, namely for the welfare of mankind (Jayadi, Putri, & Johan, 2020) . They see that life is a struggle so they never give up in facing the realities of life which are all difficult to think about because this is a characteristic of an individual's life. They can always adapt to any environment and however, and always become leaders wherever they are because in principle every individual is a leader who must be an example and role model for the environment around him. The next generation is a generation that has a high social sense, they place the interests of the world above the interests of the country, family and themselves by placing the culture of their nation to become part of the global culture. (Zubaidah, 2019) .

The next golden generation that is literate, competent, and has character qualities can be built and

grown through 21st century skills education, including through learning in schools. Learning is a process of interaction between students and between students and educators and learning resources in a learning environment (Redhana, 2019) . In the 2013 Curriculum, the learning process in educational units is held interactively, inspiring, fun, challenging, motivating students to actively participate, and providing sufficient space for initiative, creativity, and independence in accordance with talents, interests, and physical and psychological development students (Kemdikbud, 2016). Learning in the 2013 curriculum applies a scientific approach or scientific process-based approach (Dwi Susila Adnyana & Prima Dewi PF, 2019) . In scientific learning, the skills needed in the 21st century are trained and developed, including critical thinking and problem solving , creativity and innovation , communication , and collaboration with the following indicators:

1. Critical thinking and problem solving
  - a. Give reasons effectively by using various ways of reasoning (inductive and deductive) according to the existing situation;
  - b. Use think systems in a way analyze the parts (subsystems) that interact with each other to produce a complex and holistic whole system;
  - c. Analyzing and assessing evidence, reasons, statements, and beliefs  
effective;
  - d. Analyze and evaluate the main alternative options from existing perspectives;
  - e. Reflect critically on experiences and learning processes;
  - f. Summarize and look for relationships between existing information and arguments;
  - g. Interpret information and draw conclusions based on the best analysis;
  - h. Identifying and asking questions that shed light on different viewpoints that guide the best solution; And

- i. Solving various kinds of unusual problems, both in conventional and innovative ways.
2. Creativity and innovation
    - a. Using a variety of techniques to create new ideas and concrete works (originality);
    - b. Elaborate, define, analyze, and assess their own ideas to enhance and maximize creative endeavors;
    - c. Develop, implement and communicate new ideas effectively to others;
    - d. Be open and responsive to diverse viewpoints;
    - e. Demonstrate originality in work and understand the limitations to adopting new ideas;
    - f. Seeing failure as an opportunity to learn, understanding creativity and innovation is a long process of success; And
    - g. Expand creative ideas to make a real and positive contribution to innovative fields.
  3. Communication
    - a. Listening effectively to gather information;
    - b. Process information effectively to convey meaning , including knowledge, values, attitudes and intentions;
    - c. Read;
    - d. Express thoughts and ideas effectively using oral, written and non-verbal (kinesthetic) communication skills in various forms and contexts;
    - e. Use communications for multiple purposes (e.g. to informing, commanding, motivating and persuading);
    - f. Using a variety of media and technologies including multiple representations, know how to weigh effectiveness and assess impact; And
    - g. Communicate effectively in a diverse (including multi-lingual) environment.

#### 4. Collaboration

- a. Demonstrate the ability to work together effectively and respect one another;
- b. Demonstrates flexibility and a desire to be a person who likes to help others in making important agreements to achieve common goals; And
- c. Sharing joint responsibility for collective work and valuing the individual contributions made by each member of the group.

The following is a student learning activity by applying a scientific approach that facilitates the development of 21st Century skills.

**Table 1.1 5M Learning Experience and Learning Activity Descriptions**

<b>Learning Experience 5M</b>	<b>Description of Student Learning Activities</b>
Observing	<ul style="list-style-type: none"> <li>• Familiarize students to read</li> <li>• Facilitating students to find the focus of observation, main ideas, messages, meanings of the objects they observe (natural phenomena, written text, video shows, etc.)</li> <li>• Facilitate students to find errors or problems in the object of observation</li> <li>• Provide opportunities for students to retell the results of their observations</li> <li>• Stimulating students to dare to ask their point of view of the object being observed</li> <li>• Conditioning students to always accept different points of view on the object of observation</li> <li>• Conditioning students to always respond positively to other students' different points of view towards the object of observation</li> <li>• Provide guiding/directing questions to direct students when observing</li> </ul>

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Ask  
(questioning)

- Facilitating students to ask questions according to the scope of learning material and the focus of observation through guiding/directing questions
- Familiarize students to ask using procedural or hypothetical questions
- Provide opportunities for students to answer their own questions and/or questions of other students
- Stimulate students to ask different questions from other students
- Provide opportunities for students to ask questions ranging from factual questions,

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conceptual, procedural, and hypothetical

- ☐ Familiarize students to ask questions orally and/or in writing in good, correct, and easy-to-understand Indonesian

Gathering information /  
trying (experimenting)

- Provide opportunities for students to select important information/data/evidence to collect
- Provide opportunities for students to choose a variety of information collection techniques that can be carried out according to their needs
- Provide opportunities for students to choose the appropriate measuring instrument when taking measurements
- Guiding students to determine what to measure when measuring using tools
- Facilitating students to use a variety of techniques and instruments for collecting data/information
- Conditioning students to use a variety of ways when conducting experiments
- Facilitating students to create works that are unique and different from other students
- Facilitate students to collect evidence in a variety of contexts
- Stimulate students to use models or simulations to explore complex systems or problems
- Conditioning students to always cooperate with their group mates in gathering information
- Familiarize students to help friends who have problems when gathering information
- Familiarize students to work on assignments according to their responsibilities in the group
- Familiarize students to accept the contributions of other students in groups when gathering information

Reasoning/Associating  
(associating)

- Provide opportunities for students to select important and needed information
- Provide opportunities for students to find links between one information and other information
- Provide opportunities for students to find patterns of interrelated information
- Provide opportunities for students to draw conclusions from the information/data collected

- Facilitate students to use a variety of data processing techniques
- Facilitating students to present information/data in the form of tables or diagrams to make it easier to read the information

Communicating  
(communicating)

- ☐ Facilitate students to present reports in the form of charts, tables, diagrams, and graphs so that other students can easily understand them
- Familiarize students with presenting written reports in good and correct Indonesian
- Facilitating students to present the process and results of gathering and processing information in good and correct Indonesian
- Familiarize students to present the advantages of the work they make
- Conditioning students to display their work neatly and easily accessible to other students
- Facilitate students to demonstrate a certain procedure with flexibility and skill

Assessment is an important part that cannot be separated in learning. Assessment is the process of collecting and processing information to measure the achievement of student learning outcomes (Kemdikbud, 2016). Student learning outcomes include aspects of attitudes, knowledge, and skills that are relevant to basic competencies and their development such as 21st Century competencies which consist of critical thinking skills and problem solving, creativity and innovation, collaboration, and communication (Khafid, 2020) . Assessment is carried out authentically on what students are doing and on their learning outcomes after learning takes place both in the

context of achieving basic competencies, as well as other competencies such as 21st Century competencies.

Authentic assessment implies that assessment is an integral part of learning, learning will not occur without assessment or vice versa. Authentic assessment does not only measure what students know, but places more emphasis on measuring what students can do naturally, as it is, and not in a pressured atmosphere (Kemdikbud, 2013). Authentic assessment in the context of 21st Century competencies is an assessment that is carried out in a comprehensive manner to assess aspects of attitudes, knowledge, and skills starting from input, process, to learning output. Authentic assessment not only measures student work, but also measures the process when students think critically and solve problems, think creatively and innovatively, collaborate and communicate. In fact, assessment continues on measuring students' attitudes or dispositions when and after implementing certain skills (BEKAL, 2020) .

Assessment of 21st Century competencies in the context of the 2013 Curriculum is a process of collecting and processing information about critical thinking skills and problem solving, creative thinking, collaboration, and communication possessed by students during and after learning with a scientific approach is applied. The following is a learning experience by applying a scientific approach, indicators and descriptors of 21st Century competencies that may appear in students.

**Table 1.2. 21st Century Competency Descriptors in Scientific Learning**

<b>5M Learning Experience</b>	<b>21st Century Competency Indicators</b>	<b>descriptor</b>
Observe	Use think systems in a way analyze the parts (subsystems) that interact with each other to produce a complex and holistic whole system	<ul style="list-style-type: none"> <li>• Finding the focus of observation of natural phenomena</li> <li>• Finding main ideas from written text</li> <li>• Find messages from written text such as poetry</li> </ul>



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		<ul style="list-style-type: none"> <li>• Finding meaning from video shows</li> </ul>
	Analyze and evaluate the main alternative options from existing viewpoints	<ul style="list-style-type: none"> <li>• Find the mistakes contained in the written text</li> <li>• Finding problems with objects</li> </ul>
	Process information effectively to convey meaning , including knowledge, values, attitudes and intentions	Observation Retell the results of observations with language Indonesia is good and right
	Identifying and asking questions that can shed light on various points of view that guide the best solution	☑ Have the courage to ask questions according to their perspective on the object being observed
	Be open and responsive to diverse points of view	<ul style="list-style-type: none"> <li>• Accepting differences in students' perspectives on observation object</li> <li>• Responding to other students' different points of view on the object of observation</li> </ul>
Ask	Identify and ask clarifying questions	<ul style="list-style-type: none"> <li>• Ask according to the scope of learning material</li> <li>• Ask according to focus</li> </ul>

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Gathering Information/Trying	various viewpoints that guide to the best solution	observation <ul style="list-style-type: none"> <li>• Ask using hypothetical questions or procedural</li> <li>• Guess the answers from their own questions and/or other students' questions</li> </ul>
	Using a variety of techniques to create new ideas and real works (originality)	<ul style="list-style-type: none"> <li>• Ask different questions from other students</li> <li>• Ask questions that range from factual, conceptual, procedural and hypothetical questions</li> </ul>
	Process information effectively to convey meaning , including knowledge, values, attitudes and intentions	Ask questions verbally and/or in writing in Indonesian which is good, correct, and easily understood by other students
	Use think systems in a way analyze the parts (subsystems) that interact with each other to produce a complex and holistic whole system	<ul style="list-style-type: none"> <li>• Choose important information/data/evidence for collected</li> <li>• Choose a variety of information collection techniques that can be done according to needs</li> <li>• Choose the appropriate measuring tool when taking measurements</li> <li>• Determine what will be measured when measuring using simple tools</li> </ul>

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Using a variety of techniques to create ideas and works real new (originality)	<ul style="list-style-type: none"> <li>• Using various techniques to collect data/information</li> <li>• Making various data/information collection instruments</li> <li>• Record information in a variety of ways</li> <li>• Use a variety of methods when conducting experiments</li> <li>• Make work that is unique and different from other students</li> <li>• Gather evidence in a variety of contexts</li> <li>• Use models or simulations to explore a system or problem</li> </ul>
Demonstrate the ability to work collaboratively effective and mutually respectful	<p>complex</p> <ul style="list-style-type: none"> <li>• Collaborate with group mates in gathering information</li> <li>• Appreciate the contribution of group members in gathering information</li> </ul>
Shows flexibility and a desire to be a person who likes to help others in making important agreements to achieve common goals	Help friends who have problems when gathering information
Share shared responsibility for collective work and value individual contributions made by each member of the group	<ul style="list-style-type: none"> <li>• Doing tasks according to their responsibilities in the group</li> <li>• Accept the contributions of other students in the group at the time of submitting information</li> </ul>

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Associating / Reasoning / Processing Information	Analyze and evaluate evidence, reasons, statements and beliefs effectively	<ul style="list-style-type: none"> <li>• Choose important information</li> <li>• Select the required information</li> </ul>
	Summarize and look for relationships between existing information and arguments	<ul style="list-style-type: none"> <li>• Find the relationship between one information with other information</li> <li>• Find patterns of interrelated information</li> <li>• Draw conclusions from the information/data collected</li> </ul>
Communicating	Using a variety of techniques to create new ideas and real works (originality)	Using a variety of data processing techniques
	Process information effectively to convey meaning , including knowledge, values, attitudes and intentions	Presenting information/data in the form of tables or diagrams for ease of use read information
	Express thoughts and ideas effectively using communication skills verbal, written and non-	<ul style="list-style-type: none"> <li>• Presenting reports in the form of charts, tables, diagrams and graphs so that other students can easily understand them</li> <li>• Presenting reports</li> </ul>

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verbal (kinesthetic) in various forms and contexts

written in good and correct Indonesian

- Presenting the process and results of gathering and processing information in good and correct Indonesian
  - Represents the excellence of the work that he made
  - Display the work neatly and easily accessible to other students
  - Demonstrate a certain procedure with flexibility and skilled
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## CONCLUSION

The golden generation of 2045, which is a demographic bonus for the nation and state of Indonesia, can become capital or a burden for the country, depending on the preparations made by all parties, including through education. The education needed by future generations is 21st Century skills education which requires future generations to be literate, competent, and have quality character. The education in question is education that grows, not shapes, so that every student can grow according to his nature and nature to become part of the world community without forgetting the originality of his national culture. Through education, future generations are brilliant, bright, valuable, and competitive so that they can survive in any condition, however, and anywhere.

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