21st Century Learning Based on 4C Skills (Critical Thinking, Communication, Collaboration and Creativity and Innovation) Against Literacy Culture in Elementary Schools

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Abstract. 21st century learning is learning that prepares the 21st century generation with three main subjects in learning, namely: 1) Learning and Innovation Skills, 2) Information, Media, and Technology, and 2) Life and Career Skills. This study aims to conduct a literature review related to 21st century learning based on 4C skills (Critical Thinking, Communication, Collaboration and Creativity and Innovation) on literacy culture in elementary schools. The method used in this research is SLR (Systematic Literature Review). Data collection is done by documenting and reviewing all articles related to 4C Skills published in the period 2018-2022. The articles used in this study were 20 journal articles. Based on this research, it was found that the 4C skills (Critical Thinking, Communication, Collaboration and Creativity and Innovation) 1) had a positive influence on increasing students' HOTS abilities, 2) developing one or several potentials that existed in students, 3) increasing interest and student learning outcomes, 4) improve literacy culture in the school environment, 5) improve literacy in various subjects, 6) improve understanding and mastery of subject matter concepts, and 7) improve students' awareness of sustainability skills effectively. So that 4C skills can be used in elementary schools, especially in terms of literacy culture.

Keywords: 4C skills, elementary school, systematic literature review.

INTRODUCTION

21st century learning is required to be technology-based to meet the needs of the millennial generation with the aim of ensuring future students are familiar with modern life skills. This situation illustrates the gap between expectations and reality, as Greenstein (2012) said that students in the 21st century must master scientific knowledge, metacognitive skills, critical and creative thinking skills, and the ability to communicate or collaborate effectively.

The 21st century education system is undergoing a transition where schools must shift from an educator-centred curriculum approach to a student-centered approach. Thus, the demands of the future world where students must have the ability to think and learn at the same time are needed. Skills such as problem solving, critical thinking, collaborating, and communicating effectively are essential. Students are expected to have all these abilities if the teacher is able to make lesson plans that include activities that challenge them to think critically when solving problems, in other words each lesson plan must contain activities that encourage students to collaborate and communicate.

According to Davis and Ellison (1992), as the learning approach system changes and educational goals shift, the task assigned to teachers is to produce individuals who master intellectual, vocational, emotional, moral, and spiritual intelligence skills. Therefore, educating today's students to become intelligent, independent, superior, and tough individuals who are able to survive in the 21st century presents a challenge for educators. This shows the importance of educational innovation with educators having a vital and fundamental role in guiding and directing students in the learning process.

According to Nasution (2005:77), educators are individuals who assume responsibility for creating an ideal learning environment. Therefore, if educators carry out their responsibilities and functions properly, the output produced is certainly good. Conversely, if educators do not carry out their duties and functions properly, the output produced is also not good. In line with what Mulyasa (2010) said that various parties are still trying to improve the quality of education

in order to develop human resources and strengthen the nation's character. The goal of development in the field of national education is to improve the quality of education, which is an essential need. It is a component of efforts to improve the quality of Indonesian people as a whole, therefore the educational process must reflect the importance of quality education.

Several learning methods that have developed from the industrial era 4.0 to the present era of society 5.0 are all in accordance with the development of 21st century learning (Unesco, 2017). The development of education started from the 1.0 era where the teacher was the center of learning, then developed in the 2.0 era about the level of bloom taxonomy learning which was still in the form of memorization and memory. Then it increased to era 3.0 where the flipped classroom began to be implemented with discussion activities as the main ingredient for living the classroom atmosphere. In the 4.0 era education was based on digital and man-made technology, until the era of society 5.0 arrived with the exchange of information that had been formed from the previous digital technology era.

In the standard of success of students, it is generally based on the ability to communicate and use information from communication results for solving complex problems, having innovation and being able to adapt in responding to new demands by expanding the power of technology to create new knowledge. The inability of children to express their opinions and desires in the context of self-actualization makes the problems faced by children increasingly real. Therefore, children need a skill that can accommodate the disclosure of the problems they face to others.

Students who have competencies or skills relevant to the 21st century will benefit, including: 1) finding the problems they face independently, 2) having a strong desire to do everything right, and 3) being able to work in groups. or collaborating with others, (4) capable and fluent in communicating, and (5) able to find learning resources independently (Sani, Ridwan, 2019:53). In the process of learning Indonesian, especially in improving literacy culture, it is necessary to internalize the values of 21st century skills as the initial basis for student skills in the learning process. These skills are in the form of communication, creativity, collaboration and critical thinking or what are commonly called 4C skills.
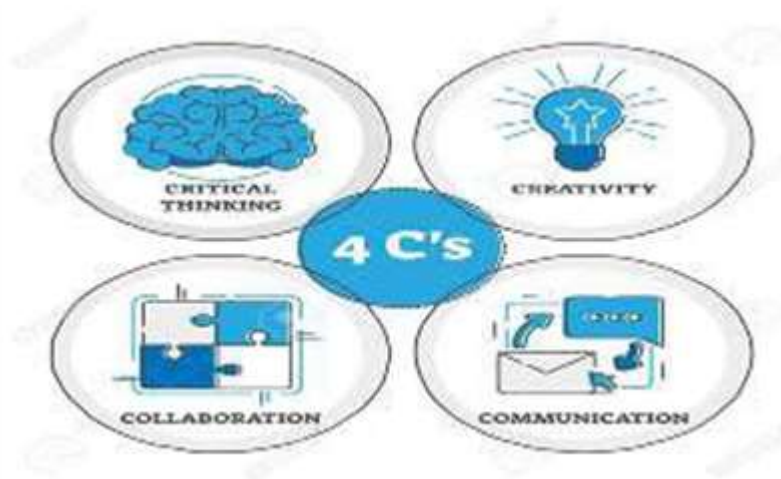
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Figure 1. 21st Century Student Skills

The use of critical thinking skills and problem solving in the learning process, among others: (1) Using inductive and deductive reasoning, in this case depending on the situation; (2) Using different types of reasoning and thinking; (3) Understanding how concepts in a subject can relate to one another, and how concepts in a subject relate to other subjects, (4) Using data and arguments effectively to evaluate and make decisions; (5) Conduct tests and build connections

between data and arguments, (6) Use the best analysis to test and process information obtained through preliminary conclusions; (7) Generate general or individual solutions to various problems, (8) Try to solve problems by utilizing the skills possessed; (9) Create a problem, express it, analyze it, then find a solution (Kemdikbud: 2017).

In the learning process, communication skills include: (1) Understanding, managing, and creating effective oral, written, and multimedia communications (ICT literacy); 2) Using the ability to communicate ideas orally and in writing, both during and outside of learning such as class discussions; 3) Speak in a way that is appropriate to the topic and background of the conversation with the other person or with the person you are communicating with; and (4) Structured according to applicable rules with logical thinking (Kemdikbud: 2017).

Creativity and innovation skills include: (1) Able to generate, take action, and communicate new ideas orally and in writing, (2) Be open to new perspectives and responsive to them; (3) Able to express creative conceptually and practically; (4) Applying concepts and knowledge in new and diverse contexts, (5) Utilizing failure as a learning tool; 6) Able to create something new by using what is already known, and (7) Able to adapt to new circumstances and contribute positively to environment (Kemendikbud: 2017).

Learning requires collaborative skills, such as the capacity to collaborate with others; 2) Taking various roles and responsibilities and collaborating effectively with others 3) Able to empathize and respect different points of view, and 4) Able to compromise with other group members in a discussion in order to achieve the set goals. (Kemdikbud: 2017).

According to Sari & Pujiono (2017), literacy can be defined as a person's ability to speak or convey information (listening, speaking, reading, and writing) and to interact in different ways according to goals. Along with the times with the advancement of information and communication, the definition of literacy has also undergone several changes which in the current century is called fifth generation literacy. The term literacy five is also called multiliteracy. According to Kusuma (2019), multiliteracy is the ability to express and understand information and ideas in various formats, including traditional text forms, novel texts, symbols, and multimedia.

In the context of the School Literacy Movement, literacy is the ability to access, understand, and use things intelligently through various activities, such as reading, viewing, listening, writing, and speaking. According to Antasari (2017), the School Literacy Movement (GLS) is a comprehensive and long-term effort to turn schools into learning institutions where citizens are literate for life through public involvement. The literacy ability of Indonesian students who represent Indonesian society in general is low, especially in terms of language literacy (Kharizmi, 2019 in Muhammad and Hofi, 2022).

The activities of students in the classroom should be accompanied by the teacher in order to deepen and enrich the knowledge of mastery of the material, so that students become directly involved. Therefore, one of the stages of the school literacy movement is "Improving literacy skills in all subjects". Can use enrichment books and reading strategies in all subject areas. Therefore, all subject teachers should be obliged to carry out the literacy movement in learning that is adjusted to the characteristics of each lesson. By using these 4c skills, students are expected to improve their literacy culture in all subject areas.

The results of the study by Suharti et al (2022) entitled "Efforts to Improve Reading and Writing English Literacy based on Local Wisdom in Local Content Learning Using the 4C Model" show an increase in English reading and writing literacy after using the 4C model. This can be seen from the average reading literacy of students in the first cycle of 65.06%, then increased to 77.08% in the second cycle, then 81.26% in the third cycle. The average value of students' writing literacy in the first cycle was 62.33%, the second cycle was 77.33%, and the third cycle was able to reach 82.96%.

Subsequent research from Karmila (2022) entitled "Application of 4C Creative Thinking, Critical Thinking and Problem Solving, Communication, Collaboration, Learning Strategies in Indonesian Class IV Students at MIN 01 Kepahiang" shows that learning activities carried out using 4C learning strategies are able to encourage students to develop their own skills. Teachers

listen more to students interacting, arguing, debating and collaborating by facilitating students to express ideas both verbally and in writing.

In addition, the research conducted by Budi (2020) entitled "Implementation of 4c-Based Technohumanistic Education in Shaping Students' Character" also shows that 4C-based technohumanistic education can control 21st century educational skills, namely by instilling character values for students caused by changing times and the rapid development of technology. Implementation of 4C-based education can adapt to 21st century educational needs. 21st century educational needs not only focus on cognitive, psychomotor and metacognitive domains but must instill values (morals) in the affective realm.

Based on several studies that have been conducted, it shows that 21st century learning based on 4C skills can be used as a learning method that supports literacy culture in elementary schools, both in linguistic literacy, inculcating student character education and so on. This is in accordance with what was stated by Yulia and Silviana (2022), every educational institution, especially schools, is required to have 4C skills in the teaching and learning process, because these skills are skills that are needed by students in dealing with the ongoing development of digitalization. So that it makes researchers interested in conducting a literature review on 21st century learning based on 4C skills on literacy culture, especially in elementary schools.

METHOD

This study uses a systematic literature review (SLR) method. In this case, the researcher carried out several stages, namely reading, understanding, reviewing and analyzing several journals related to the topic of 4C-based 21st century learning on literacy culture. As explained by Mestika (2004), library research is a series of activities related to methods of collecting library data, reading and taking notes, and even processing library collections without the need for field research. To complete this research, the researcher collected journals in the last 5 years between the 2018-2022 publications from the time of the research conducted by the researcher. The number of journals related to the topics raised was collected as many as 20 journals.

RESULTS

21st Century Skills Communication

Indonesian Communication is an exchange process that takes place between living things. As a result, humans are always involved in interpersonal, group, and mass communication. Communication researchers point out that until recently language was recognized as the most effective medium. to communicate in human interactions, such as counseling and coaching activities, educational processes, meetings at work, and others (Muhtadi, 2012). During the learning process, teachers need to familiarize their students with communicating with teachers and other students about lessons and other topics. The language used by students in communicating will have an impact on themselves. Children will benefit from using good language during communication. As a result, self-confidence in the form of satisfaction will grow as a result of achieving the desired goals.

Collaborative

According to several researchers, they have proven that students learn better when they are actively involved in the learning process that is divided into small groups. Students who work in small groups tend to learn more about teaching materials and have a better memory of the lessons themselves, compared to using the lecture format as the main teaching method. (Warsono and Hariyanto, 2012:66-67). Students need to be taught the ability to collaborate with others with people who have various kinds of differences in cultural backgrounds and values. Students should be encouraged to cooperate with their classmates in gathering information and constructing meaning. Students also need to be taught how to appreciate each person's abilities when working on a product, as well as how to take a role and adapt in it.

Critical Thinking and Problem Solving

The ability to think must exist in every human being. Thinking is a natural ability that is always present in all aspects of life. The thought process itself can be broken down into several levels, the lowest of which requires only memory and the highest. which requires reflection. As explained by Elaine B. Johnson, (2009), critical thinking skills are a directed and clear process used in training mental activities such as problem solving, decision making, analyzing assumptions and conducting scientific research. Critical thinking is the ability to express opinions and the ability to systematically evaluate personal opinions and the opinions of others.

Creativity and innovation

According to Euis Kurniati and Yeni Rachmawati (2010), children's creativity can develop if it is supported by several factors, including the following: 1) Provide good mental stimulation. The stimulation or stimulation given is on the cognitive, personality, and psychological aspects of the child. 2) Creating a conducive environment so that children can develop their creativity, in order to make it easier for children to access everything that is seen, felt, heard and played. 3) The teacher's role in fostering the creativity of skilled educators will provide the right stimulation to children so that their students become creative. 4) Participation of parents. What is meant here is that parents let their children do activities that foster creativity.

Personal and professional accomplishments require creative thinking and innovative skills. Students will be more innovative and creative if they are given the opportunity to think differently. Students should be encouraged to think out of the box, introduced to new ways of thinking, given the opportunity to present new concepts and solutions, ask unusual questions, and try to propose initial answers. Individual success will be obtained by students who have creative and innovative skills.

4C Skills Against Literacy Culture

Literacy is more than just reading and writing, but includes thinking skills using knowledge sources in print, visual, digital, and auditory forms. Literacy can be translated into Basic Literacy, Library Literacy, Media Literacy, Technology Literacy, Visual Literacy. According to the Ministry of Education and Culture (2017), the literacy movement in schools is no longer a separate part, let alone stand alone in its implementation. The developed literacy culture aims to foster critical thinking skills through reading and writing, which in the end the process will create a work which further increases students' interest in reading and writing. (Syahlan, 2019). Through 4C skills (Critical Thinking, Communication, Collaboration and Creativity and Innovation), learning of various kinds of literacy cultures can be carried out properly. The 4C skills applied to the literacy culture in schools have an influence on the implementation of skill-based scientific learning on student learning outcomes.

Students can apply 4C skills in learning and require students to look for book literacy to find additional information. In the literacy-oriented learning process, students appear to have characters as thinkers, creative, innovative, characterized by high adaptability, able to solve complex problems, strong self-control, and self-direction. Therefore, 4C skills are very important, especially in finding information literacy. Information literacy is seen from three aspects, namely: realizing the need for information, searching and using information, where many students already know how to browse and use the information needed. As stated (Muhammad et al., 2019) Literacy culture has a significant positive influence between reading culture and students' critical thinking skills. Through the 4C skills, literacy can greatly assist students in developing communication skills, being able to work in teams by collaborating and being able to build interpersonal relationships.

This is evident from several studies that have been carried out using 4C skills as the main formula for teaching literacy-based learning in schools and in similar institutions. Teachers are interested in applying these skills because they are easy to understand and the results of their implementation can help students build character, and improve their conceptual understanding. Therefore, 4C-based 21st century skills have been applied in schools which are confirmed by research results from several research sources which can be seen in the introduction and the

following   table:

Table 1. Application of 4C Skills to Literacy Culture

Researcher, Year and Title	Research Subjects and Research Types	Research Result
Resti Septikasari and Rendy Nugraha Frasandy (2018), 21st Century 4C Skills in Basic Education Learning	The research subject is collecting various references related to 21st century skills. The type of research is library research with descriptive analysis method.	The result of this research is that with the implementation of 21st century skills called 4C, teachers must communicate well with students continuously in various
Tia Marliani, Ghullam Hamdu, Oyon Haki Pranata (2021), Development of STEAM Learning Worksheets to Achieve 4C Skills with Electrical Tandem Roller Media in Elementary Schools	The subject of the study was the elementary school Student Worksheet (LKS). This type of research is a qualitative method with data collection techniques Focus Group Discussion (FGD)	The decision was obtained in the form of STEM learning Student Worksheets based on 4C abilities with Electrical Tandem Roller Media in elementary schools.
Slamet Widodo, Rizky Kusuma Wardani (2020), Teaching 21st Century Skills 4C (Communication, Collaboration, Critical Thinking, And Problem Solving, Creativity and Innovation) in Elementary Schools	The research subject is collecting various references related to 21st century skills. The type of research is literature review.	The results of the study show that how to teach 21st century skills can be done by teachers of all levels of education. The learning can be innovated by the teacher by taking into account the suitability of the material, the needs and conditions of student learning.
Ressy Monica, Zuhar Ricky, Estuhono (2021) Development of Science Modules Based on Research Based Learning Models on 4C Skills of Elementary	The research subjects were fourth grade students of SDN 08 Sitiung. The type of research is development research, namely a 4-D model consisting of the stages of	The results of the module validation assessment carried out by 3 experts had an average score of 85% with a very valid category. The results of

School Students	defining, designing, developing, and distributing.	the practicality assessment of the module conducted by the classroom teacher had a score of 100%. The results of the module effectiveness assessment conducted by students have a percentage of 74% in the effective category. Thus the learning module based on the RBL module on 4C skills can be used as an alternative learning resource so that it can generate students' 4C.	
Dian Meilani, Umm Aiman (2021) Application of the 4C-Based Make A Match Learning Model Assisted by Number Card Media to Improve Mathematics Learning Outcomes in Elementary Schools	The research subjects were 33 students of class II MIN 2 Lembata. This type of research is classroom action research with the model used by Kemmis and Mc Taggart which consists of two cycles.	The results showed an increase between cycles of 24.24% where cycle I (72.72%) and cycle II (96.96%). Shows that the application of the Make A Match model based on 4C assisted by number card media can improve mathematics learning outcomes.	
Nurhalisah, Andi Paida, Rahmatiah (2022) Implementation of	The subject of the study was the Indonesian language teacher at SMPN	Based on the results of research and discussion, it was	

Critical, Communication, Collaboration And (4C) Learning by Indonesian Language Teachers at SMPN 10 Barru

10 Barru. This type of research is descriptive qualitative research.

concluded that the implementation of learning by Indonesian language teachers at SMPN 10 Barru had been carried out with an average category of very good. From several 4C observation tables, almost all of the observations were carried out well according to the achievement indicators. The results of the interview show that the obstacles in implementing 4C learning are students who are difficult to manage, lack of supporting facilities and infrastructure such as internet networks and projectors.

Ellychristina D Hutubessy (2021) 4C Skills in Learning German	The research subjects were 82 students (45 people in the 2019-2020	The results show that the framework formed for each core

Literature Using Film	academic year and 37 people in the 2020-2021 academic year. This type of research uses a qualitative approach through surveys.	learning activity contains 4C skills that involve students from the beginning of learning activities in class, starting from understanding learning objectives, division of tasks, group formation concepts, work discussions and involving group work assessments.
Septiansyah Tanjung, Nana Supriatna (2021) Creative Literacy: Building 21st Century Skills Through Learning the Local History of the Langkat Sultanate	The research subject is the application of creative pedagogy and literacy learning in learning local history of the Sultanate of Langkat with the type of literature study research	The integration of a number of these approaches results in the concept of creative literacy which provides opportunities for students to develop multi-competencies such as 21st century skills and literacy skills including digital literacy.
Nur Rohman (2019) Strengthening Character and New Literacy in Boarding-Based Schools Responding to the	The subject of the research is the Bumi Kartini Islamic Boarding School Jepara. This type of research uses qualitative methods.	The results of the research on strengthening literacy have only been carried out through formal learning in schools where

Challenges of the Era of Society 5.0		students have been accustomed to honing 4C skills and on boarding through data literacy, technological literacy, and human resource literacy.
Feri Tirtoni, Ika Ratna Astutik, Fitria Wulandari (2020) Development of Bright Barcode Box Storage Media Based on Digital Literacy Acceleration Skills In The Knowledge Age to Improve 21st Century Learning Skills	The research subjects were 3rd grade students of SD Ketajen Sidoarjo. This type of research uses a research and development approach (Research and Development),	Based on the results of trial I and trial II there was an increase in student learning skills that increased using digital interactive media by 76% in terms of 4C abilities through Bright Barcode Box Storage
Dwi Aulia Zahroh (2021) Development of Science Literacy-Based e-LKPD to Practice Students' Critical Thinking Skills on Growth and Development Materials	Research subjects 20 students of class XII MIPA 1 SMAN 1 Tarik Sidoarjo. The type of research is Development research by producing e-LKPD using 4D development (define, design, develop, disseminate)	The results showed that the validation of the developed e-LKPD obtained an average of 98.38% (very valid), the practicality of the e-LKPD had an average of 96.65% (very practical), the effectiveness obtained an average of 100% (very good), the average

		presentation of learning outcomes indicators of critical thinking skills are 90% (very good), student responses get an average of 94% (effective). So the literacy-based e-LKPD to train students' critical thinking skills on the growth and development material developed has been declared valid, practical, and effective to be applied to the learning process.
Purwo Ssangko (2019) 4C Competency Assessment (Communication, Collaboration, Critical Thinking & Problem Solving, Creative & Innovative) Integrated with Science Literacy for High School Students MIPA Program	The research subjects involved 112 responses from students of SMA 2 Kota Tegal and SMA 3 Kota Tegal. This type of exploratory descriptive research involves literature review and empirical studies.	The results of the study show 1) 4C skills have been included in the achievement of scientific literacy which is the main goal of science education, 2) 4C skill measurement constructs are integrated with scientific literacy abilities, 3) The component of the scientific literacy comprehensive exam for high school students consists of two parts: Reasoning aspect scientific and critical thinking as well as Aspects of the Nature of Science
Intellectual Capital and Knowledge Management in Innovation and Creation of Learning Media Based on 4C Capabilities and Literacy	The subject of research on the importance of intellectual capital and knowledge management in a school organization uses a literature study approach.	The results of the study conclude that school organizations as formal educational institutions aim to prepare students to welcome the world of work in the industrial era 4.0, relying heavily on educators to be able to carry out learning that involves a culture of

		literacy and 21st century skills.
Fiqi Annisa Indrawati, Wardono (2019) Efficacy on Mathematical Literacy Ability and 4C Ability Building	The research subject is measuring students' ability to mathematical literacy using literature study	Life in the 21st century requires a variety of skills that must be mastered by someone, so it is hoped that education can prepare students to master these skills. 21st century learning must be student-focused, collaborative, contextual, and integrated with society
Budi Sriyanto (2021) Improving 4C Skills With Digital Literacy at SMP Negeri 1 Sidoharjo	The research subjects were teachers and principals of SMPN 1 Sidoharjo. The research method used classroom action research which was carried out for 2 cycles.	The results of the research in cycles 1 and 2 showed an increase in the teacher's 4C skills. The results of observations, sociometry, and questionnaires on 4C skills show that in cycle 1 the average score for critical thinking is 76%, creativity is 76%, communication is 75%, creativity and innovation is 76%, collaboration is 76% good criteria, in cycle 2 the average score is thinking. critical 87%, creativity 85%, communicating 86%, creativity and innovation, collaboration 84% on very good criteria. It can be concluded that the application of digital literacy can improve the 4C skills of teachers at SMPN 1 Sidoharjo.
Asri Harfiyani (2018) Strengthening Character Education	The research subject is the application of strengthening character	In order to develop competencies that are characteristic of

Through Literacy Culture in the Context of 21st Century Learning in Elementary Schools	education through literacy culture in the context of 21st century learning with qualitative research types.	21st century learning skills, it is by following up on reading activity programs. Follow-up activities can be carried out through analysis of the content and context of the readings that have been read by students.
Suci Ramadhanti Febriani, Sri Masyitah (2019) Analysis of 21st Century Skills in the Arabic Learning Process in Elementary Schools	The research subjects were students of SD Al-Kautsar Malang with the type of qualitative research using case study methods.	The results showed that the application of Arabic language learning at SD Plus Al-Kautsar had met the 21st century skill standard which emphasized the student-centered learning process using active learning.
Muhammad Fauzan Muttaqin, Hofipah Rizkiyah (2022) The Effectiveness of Literacy Culture in Improving Elementary School Students' 4C Skills	The research subjects are students of SD Negeri Petir 4 and SD Negeri Cipondoh 6. This type of research is descriptive qualitative	The results of the study show that the implementation of the literacy culture that has been running is very effective, the literacy culture makes students have 4C skills
Lina Sugiyarti, Alrahmat Arif, Mursalin (2018) 21st Century Learning in Elementary School	The research subject is 21st century learning in elementary schools using literature studies that examine books and journals	The result of the research is that students are able to have human resources that are work-oriented and environmentally friendly. GLS is a participatory movement of school residents to create literate schools through habituation. The implication is that the teacher does 4C learning, literacy with

multiliteracy and GLS.

Based on the results of the research that has been carried out, as stated in the explanation of the table above, it can be ascertained that 21st century learning based on 4C skills can be applied to learning activities in schools, especially elementary schools in cultural literacy activities in various fields with various learning outcomes. Kind and support high society 5.0.

CONCLUSION

The application of 4C skills (Critical Thinking, Communication, Collaboration and Creativity and Innovation) is very suitable for use in elementary schools, a skill with effective learning stages to hone the character readiness, skills, and literacy of students needed in the 21st century. This is because 4C skills can have a positive influence on improving students' HOTS abilities and can develop one or more of the potential of the students themselves. Using 4C skills in schools can also increase student interest and learning outcomes, improve literacy culture in the school environment, improve literacy in various subjects, increase understanding and mastery of subject matter concepts and improve students' awareness of sustainability skills effectively. So that 4C skills can be used in elementary schools, especially in terms of literacy culture.

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