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21st Century Skill-Based Learning (Teacher Problems In Applying 21st Century Skills)

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Abstract

This article is the result of an analysis of various research articles that apply skills-based learning in the 21st century. One of the similarities between the 2013 Curriculum and the Free Learning Curriculum is the implementation of 21st century skill-based learning. 21st century skills include communication, collaboration, critical thinking and problem solving, and creativity and innovation. In this study, data collection was carried out by collecting the results of research that had been carried out in the form of scientific articles related to 21st century skill-based learning. The samples taken were 10 scientific articles from national journals. Data was collected by identifying the observed variables, through the coding method. Coding is carried out according to the observed variables, namely the problems that occur in the implementation of 21st century skill-based learning in elementary, middle and high schools. Then the data that has been collected is analyzed using descriptive statistical techniques. From the results of the study, there are the same problems faced by teachers in the 21st century skill-based learning process, namely students having difficulty understanding the material in the student's handbook, especially for critical thinking in 21st century learning, the teacher's lack of understanding about the application of 21st century skills. 21 in learning and students have not been able to carry out all the 4C skills of the 21st century but can only implement one or two skills in the learning process.

Keywords: 21st Century Skills Learning, Problems, Teachers

INTRODUCTION

The rapid development of science and technology has changed the direction of curriculum demands. Currently, the practice of learning in schools requires teachers to develop the skills needed by students in responding to the challenges of the times. These skills are known as 21st century skills which consist of critical thinking and problem solving skills, creativity and innovation, collaboration skills, and communication skills (Kereluik, Mishra, Fahnoe, & Terry, 2013). 21st Century Skills abbreviated as 4C namely communication, collaboration, critical thinking and problem solving, and creativity and innovation can be described in four categories of steps, namely: First, ways of thinking, including being creative, innovating, being critical, solving problems, making decisions, and pro-active learning. Second, how to work including communicating, collaborating, working in teams. Third, how to live as global and local citizens; and fourth, tools to develop 21st century skills, namely information technology, digital networks, and literacy. Trilling and Fadel (2009: 47) initiated the concept of a rainbow of skills and knowledge as core subjects or main competencies that must be developed in the context of 21st century education. The rainbow of skills and knowledge is presented in the following figure:

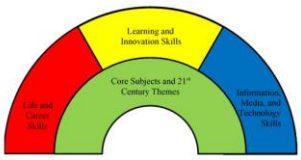

Figure 1. The Rainbow of 21st Century Skills and Knowledge (Trilling & Fadel, 2009: 47)

Based on the rainbow of skills and knowledge they have developed, Trilling & Fadel (2009: 48) explains that the main skills that must be possessed in the context of the 21st century are learning and innovation skills. These skills relate to the ability to think creatively and solve problems, the ability to communicate and collaborate, and the ability to be creative and innovative. To help students develop these skills, teachers are needed who not only master content, but also master pedagogy and technology in facilitating student learning experiences (Mishra & Mehta, 2016).

21st century skills include critical thinking and problem solving skills, creativity and innovation, communication skills, and collaboration skills. Ravitz (2014) describes the basic concepts of each of these skills and outlines practical things teachers can do to help students develop these skills. This makes it easier for teachers to design learning activities that can support the development of 21st century skills in students. Thus, learning in the classroom is no longer just focused on mastering content, but through each subject students develop these 21st century skills (Mishra & Mehta, 2016).

The reality that is happening now is that the implementation of 21st century skills-based learning has not been implemented properly. From some of the problems that exist, the researcher is interested in conducting a literature study on how to implement 21st century skill-based learning in primary and secondary schools. The purpose of this research is to find out the problems of implementing 21st century skill-based learning in primary and secondary schools, with the hope that it can be used as a reference in future research.

RESEARCH METHODS

The type of research used is a literature study using a systematic review that provides an overview of article publications. The data listed comes from sources that can be accounted for based on research recommendations. All data was obtained from searching through Google Scholar with the help of "Publish or Perish 7". This is done with the aim of accelerating data discovery with the keywords "21st century learning", "21st century skills", and "21st century skills problems". Keywords are used in Indonesian. 20 relevant articles were obtained, then the articles were filtered back into 10 fixed articles which were used as data in this study.These 10 articles were selected because they were considered the most relevant to the research conducted by the researcher. To simplify the analysis, a data analysis table was made consisting of methods, number of respondents and conclusions and then discussed. Data analysis techniques are descriptive and objective. After being analyzed and discussed, conclusions can be drawn as the final result of the research conducted. As additional data, namely a diagram showing the number of references used from each source

RESULT AND DISCUSSION

The data findings in this study can be seen in Figure 3. Presenting the data findings in the 2018-2022 publications.

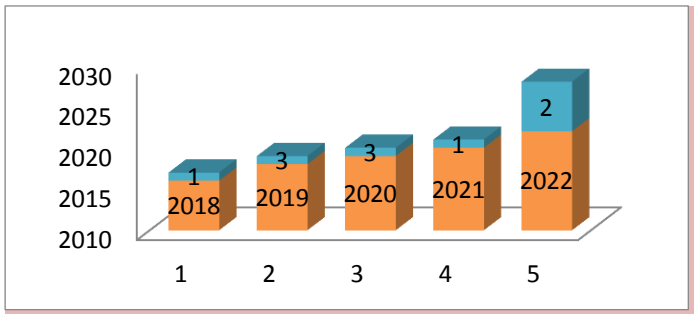

Figure 3. Article review data for 2018-2022

In accordance with Figure 3, it can be seen that there are the most teacher problems in applying 21st century skills in 2019 and 2020 with a total of 6 articles.The results of an analysis of 10 articles from national journals related to problems in the implementation of 21st century skills-based learning show several problems experienced by teachers in learning and the solutions provided by several researchers regarding problems experienced in the field. The problems experienced by teachers in 21st century skill-based learning can be seen in the following table:

Problems Facing Teachers In 21st Century Skill-Based Learning
Table 2. Article Analysis

No	Writer	Title	Research methods
1	Dwi Nanda Akhmad Romadhon (2019)	Implementation of Critical Thinking Skills in Social Studies Learning at the Junior High School Level as Existence to Improve 21st Century Skills	SLRs
2	Aditya Wiranata Sa'pang (2020)	Teacher self-efficacy, understanding of student character, and understanding of 21st century skills as predictors of facilitator-type teaching style	Quantitative Approach
3	Cik'ani (2021)	Improving Learning Activities Through the Application of Problem Based Learning Models with High Order Thinking Skills and 21st Century Learning Oriented Skills for Junior High School Students	PTK
4	Greetings Widiantoro 2020	Development of the Ecoprint Learning Model to Improve 21st Century Skills in Elementary Schools	ADDIE Development
5	Nur Syariful Amin 2022	Development of Blended Learning to Improve 21st Century Skills for SMAN 2 Kota Bima Students	qualitative research with a multi-case approach
6	Yuanita Dewi Chrisnamurthy 2018	Retention of mathematical solving abilities in the perspective of 21st century skills in elementary school students	Experimental method
7	Frilisa Dliyaul Haya, 2022	The Effectiveness of Gasik Games 2.0 in Science Learning to Grow 21st Century Skills for Junior High School Students	Experimental method
8	Siti Nuraeni, 2019	Implementation of Students' Self-Efficacy and Critical Thinking Skills in Chemistry Learning in the 21st Century	correlational method
9	Agung Jayadi, 2020	Identification of provision of 21st century skills in the aspect of problem solving skills of Bengkulu city high school students in physics subjects	descriptive research
10	Taryono, 2019	Application of Project-Based Learning and Problem-Based Learning in Physics to Improve Students' 21st Century Skills (4Cs)	descriptive research

To see the results of the teacher's problems in implementing 21st century skills-based learning can be seen in table 3 below:

Table 3. Analysis of Research Results

No	Writer	Results
1	Dwi Nanda Akhmad Romadhon (2019)	students experience difficulties in understanding the material in the student handbook especially for critical thinking in 21st century learning
2	Aditya Wiranata Sa'pang (2020)	the teacher's lack of understanding about the application of 21st century skills in learning has an impact on the teaching style of teachers at Sekolah Dian Harapan Jakarta
3	Cik'ani (2021)	HOTS thinking levels and 21st century skills are still low in science subjects in one of the junior high schools
4	Greetings Widiantoro 2020	the results of the study found that learning in elementary school that encourages 4C skills is still not optimal
5	Nur Syariful Amin 2022	in research during the pandemic found positive things that during the pandemic and post-pandemic learning activities by teachers, often using online learning processes, not only that, all teachers integrated the online learning process with face-to-face learning. This is because almost all teachers and students respond well to the use of technology in learning, this will have an impact on the skills of 21st century students.
6	Yuanita Dewi Chrisnamurthy 2018	The results of the study show that the retention of the problem solving skills of fourth grade students from the perspective of 21st century skills is still low.
7	Frilisa Dliyaul Haya, 2022	For the results of observing 21st century skills on psychomotor aspects in the experimental class, there was one skill that met the standard, namely collaboration, while the control class did not meet the standard.
8	Siti Nuraeni, 2019	shows that one of the schools in the Tangerang district has not implemented learning related to the four 21st century skills. Subject teachers have not been able to carry out 21st century skill-based learning
9	Agung Jayadi, 2020	found positive things from his research, namely the application of 21st century skill-based learning has been carried out quite well in high school physics learning in Bengkulu Province based on the results of a survey conducted on the high school students
10	Taryono, 2019	revealed that even though the competency standards for 21st century skills graduates have been stated, in reality they have not been optimally trained in learning activities in the classroom.

The results of the synthesis show several findings that there are still schools that find problems in implementing 21st century skill-based learning. Dwi Nanda Akhmad Romadhon (2019) in research at a junior high school in Tanjung Jabung Timur, stated that students experienced difficulties in understanding the material in the student handbook especially for critical thinking in 21st century learning. Taryono (2019) revealed that even though the competency standards for 21st century skills graduates have been stated, in reality they have not been optimally trained in classroom learning activities. Based on observations of in-class learning and unstructured interviews with teachers, data was obtained that learning was carried out mostly using the lecture method and sometimes demonstrations carried out in class, this was done due to time constraints and the dense material that had to be conveyed to students.In addition, students rarely get assignments to carry out observations or research and project assignments. Assignment is more to work on the practice questions contained in the student textbook, so that students' collaboration skills and communication skills are not trained.

In the same vein, research conducted by Siti Nuraeni (2019) shows that one of the schools in Tangerang district has not implemented learning related to the four 21st century skills. Subject teachers

have not been able to carry out 21st century skill-based learning. The same problem was found by Aditya Wiranata Sa'pang (2020), the lack of understanding of teachers regarding the application of 21st century skills in learning has an impact on the teaching style of teachers at Sekolah Dian Harapan Jakarta. Cik'ani (2021) in Classroom Action Research revealed the fact that the level of HOTS thinking and 21st century skills is still low in science subjects in one of the junior high schools.

Slamet Widiantoro (2020) from the results of his research found that learning in elementary schools that encourages 4C skills is still not optimal. This happens because the teacher in carrying out thematic learning sometimes separates the learning of mathematics, science or art so that the learning objectives are not appropriate. Nur Syariful Amin (2022) in his research during the pandemic found positive things that during the pandemic and post-pandemic learning activities by teachers often used online learning processes, not only that, all teachers integrated the online learning process with face-to-face learning. This is because almost all teachers and students respond well to the use of technology in learning, this will have an impact on the skills of 21st century students.

Yuanita Dewi Chrisnamurthy (2018) shows that the retention of the problem solving skills of grade IV students from the perspective of 21st century skills is still low. The reason is that all this time the teacher's concern in solving mathematical problems has placed more emphasis on the learning process based on tasks given in a structured way through tests and non-tests, without any stages that support the learning process of solving mathematical problems. So that 21st century skills are not used at all. The same thing was also found by Frilisa Dliyaul Haya (2022) that for the results of observing 21st century skills in the psychomotor aspect in the experimental class there was one skill that met the standard, namely collaboration, while the control class did not meet the standard.

Solutions In Overcoming Teacher Problems In 21st Century Skill-Based Learning

There are many things that teachers can do to overcome difficulties or limitations in 21st century skill-based learning. The following are some of the solutions to problems provided by several researchers in their research: First, teachers can compile handbooks for students that can awaken students' critical thinking skills so that they will be able to think rationally and logically in receiving information and systematically in solving problems. Teachers must make planned and systematic efforts, by making plans that are right on target such as creating open-ended and less structured problems to start learning, assigning students to solve problems systematically, and directing students to seek information independently regarding the problems given (Redhana, 2019).

Second, teachers can apply learning models that are seen as capable of facilitating students' 21st century skills, namely the project-based learning model (PjBL) and the problem-based learning model (PBL). The two learning models are innovative learning models suggested in the independent curriculum. Blended learning can also be a solution, because according to the results of research and discussion, blended learning is very relevant for use in schools. Blended learning learning by utilizing elements of information technology, with a pattern of direct guidance from the teacher is useful in motivating students and teachers to learn new knowledge, increasing the knowledge and skills of teachers and students.

Third, the attainment of 21st century skills is carried out by updating the quality of learning, helping students develop participation, adjusting personalized learning, emphasizing project/problem-based learning, encouraging collaboration and communication, increasing student involvement and motivation, cultivating creativity and innovation in learning, using media appropriate learning, designing learning activities that are relevant to the real world, empowering metacognition, and being explicitly taught.

Apart from the problems from the research results, there are two studies showing that the application of 21st century skill-based learning has been carried out well in the schools where the research was conducted, namely research by Nur Syariful Amin 2022, in research during a pandemic found positive things that during a pandemic and post-pandemic activities learning by teachers, often using online learning processes, not only that, all teachers integrate online learning processes with face-to-face learning. This is because almost all teachers and students respond well to the use of technology in learning, this will have an impact on the skills of 21st century students.

CONCLUSION

Based on the discussion above, it can be concluded that teachers in general have made efforts to properly implement 21st century skill-based learning. However, there are still a number of problems which are summarized into 3 main problems, namely students having difficulty understanding the material in the student handbook especially for critical thinking in 21st century learning, lack of teacher understanding of the application of 21st century skills in learning and students not yet able to implement all 4C skills of the 21st century but can only implement one or two skills in the learning process.In addition to the problems from the research results, there are two studies which show that the application of 21st century skills-based learning has been carried out well in the schools where the research was conducted.

REFERENCES

Ahsanu Amala, H., & Solihat, R. (2019). Assimilation: Indonesian Journal of Biology Education Virtual Field Trips and Their Use as Facilitators in Developing the Students' Communication Skills for the 21st Century (Virtual Field Trips as a Facilitator to Develop the Students' Communication Skills for the 21st Century). Assimilation: Indonesian Journal of Biology Education, 2(1), 29–34. http://ejournal.upi.edu/index.php/asimilasi

Alimuddin, A., Tamrin, Ag., & Budiyanto, CW (2022). DEVELOPMENT OF A MOBILE-BASED DISCOVERY LEARNING MODEL TO IMPROVE 21ST CENTURY SKILLS IN VOCATIONAL HIGH SCHOOLS. Scientific Journal of Technical and Vocational Education, 15(1), 1. https://doi.org/10.20961/jiptek.v15i1.64836

Amin, NS, Rahmawati, A., Azmin, N., Nasir, M., Teacher Training, ST, & Education, I. (2022). Development of Blended Learning Learning to Improve 21st Century Skills for SMAN 2 Kota Bima Students (Vol. 5). http://Jiip.stkipyapisdompu.ac.id

Andayani, Y., Sridana, N., Kosim, Setiadi, D., & Hadiprayitno, G. (2019). Expectations and Challenges of Implementing Science Learning in the Context of 21st Century Competency Skills in Junior High Schools. Sumba Education Journal (JES), 2(3), 53–60.

Armando, R. (n.d.). REALIZING THE 4C SKILLS OF STUDENTS IN THE 21ST CENTURY THROUGH PROBLEM-BASED LEARNING MODELS.

Language Development and Cultivation Agency. (2022). PROCEDURE OF THE NATIONAL SEMINAR ON LANGUAGE AND LITERATURE IN DIVERSITY IN LANGUAGE AND LITERATURE PERSPECTIVE (Djamari, Lustanti, & Sriyanto, Eds.). Language Development and Fostering Agency of the Ministry of Education, Culture and Technology of the Republic of Indonesia.

Cik'ani, Mrs. (2021). IMPROVING LEARNING ACTIVITIES THROUGH THE IMPLEMENTATION OF PROBLEM BASED LEARNING MODELS WITH LEARNING ORIENTED HIGH ORDER THINKING SKILLS AND 21st CENTURY SKILLS FOR SMP STUDENTS. JIRA: Journal of Innovation and Academic Research, 2(5), 652–664. https://doi.org/10.47387/jira.v2i5.129

Daga, AT (2022). Application of a Scientific Approach in the 2013 Curriculum to Develop 21st Century Skills in Elementary School Students. JIRA: Journal of Innovation and Academic Research, 3(1), 11–28. https://doi.org/10.47387/jira.v3i1.137

Dewi Chrisnamurthy, Y., Ellianawati, & Isnaeni, W. (2018). RETENTION OF MATHEMATICS SOLVING ABILITY IN 21ST CENTURY SKILLS PERSPECTIVE IN ELEMENTARY SCHOOL STUDENTS. Elementary Education Fundamentals, 1(1), 61–65.

Dliyaul Haya, F., Salim, A., & Suberi, S. (2022). The Effectiveness of Gasik Games 2.0 in Science Learning to Grow 21st Century Skills for Junior High School Students. 5(2), 67–74.

Dwi, *, Akhmad, N., Smpn, R., & Timur, TJ (2019). Implementation of Critical Thinking Skills in Social Studies Learning at the Junior High School Level as Existence to Improve 21st Century Skills. FKIP Batanghari University, Jambi, 3(2).

Falaq, Y. (2019). Tadris Study Program of Social Sciences, Kudus State Islamic Institute. DEVELOPMENT OF STUDENT WORK SHEET TO IMPROVE RESEARCH SKILLS IN Social Studies Subjects in Junior High Schools in Kudus District. In Ijtimaiya : Journal of Social Science Teaching (Vol. 3, Issue 2). http://journal.stainkudus.ac.id/index.php/Ijtimaia

Fu'adiah, D. (2017). Development of Quantitative Reasoning in Elementary Schools to Develop Algebraic Thinking in Junior High Schools. In Journal of Education Research and Mathematics Learning Innovation (Vol. 1, Issue 1).

Harapan, R. (2021). Development of Local Wisdom-Based Middle School Mathematics Teaching Materials in Junior High Schools. Basicedu Journal, 5(3), 1259–1270. https://doi.org/10.31004/basicdu.v5i3.884

Jayadi, A., Putri, DH, & Johan, H. (2020). IDENTIFICATION OF 21st CENTURY SKILLS IN THE ASPECT OF PROBLEM SOLVING SKILLS OF BENGKULU CITY HIGH SCHOOL STUDENTS IN PHYSICS SUBJECT. Journal of Coil Physics, 3(1), 25–32. https://doi.org/10.33369/jkf.3.1.25-32

Khairunnisa. (n.d.). Implementation of History Learning Strategies with Technological Skills in the 21st Century.

Kharisma, N., Auzar, A., & Septyanti, E. (2022). DEVELOPMENT OF A VISIBLE SKILL TEST FOR STUDENTS OF CLASS IX IN JUNIOR HIGH SCHOOL. JURNAL PAJAR (Education and Teaching), 6(1), 132. https://doi.org/10.33578/pjr.v6i1.8388

Kodri, K., & Anisah, A. (2020). Analysis of Metacognitive Skills of High School Students in 21st Century Economics Learning in Indonesia. Edunomic Journal of Economic Education, 8(1), 9. https://doi.org/10.33603/ejpe.v8i1.2815

Laili, H. (2019). DEVELOPMENT OF COMPETENCY-BASED MATHEMATICS ASSESSING SYSTEM IN JUNIOR HIGH SCHOOLS IN LOMBOK CENTRAL DISTRICT. Journal of Islam and Education, 1(1), 1–21.

Nuraeni, S., Feronika, T., & Yunita, DL (2019). Implementation of Students' Self-Efficacy and Critical Thinking Skills in Chemistry Learning in the 21st Century. Jambura Journal of Educational Chemistry, 1(2).

Nurmina, S., Sridana, N., & Junaidi, J. (2021). The Influence of 21st Century Skill-Based Realistic Mathematics Learning on Learning Outcomes of Class VII Students of MTs Muallimat NW Pancor. Mandalika Mathematics and Educations Journal, 3(1), 1–8. https://doi.org/10.29303/jm.v3i1.1956

Oktaviani, N. (n.d.). THE SKILLS OF INDONESIAN TEACHERS IN FACING LEARNING CHALLENGES IN THE 21st CENTURY.

Pustekkom, P., Re Martadinata, KJ, Km, C., & Banten, T. (2012). GOOGLE EFFECTS AND TUDENT MASTERY ON 21ST CENTURY LEARNING SKILLS. In Technodic Journal (Vol. 4).

Saepuzaman, D., Akmara Dhina, M., & Fitriyanti, N. (2019). Application of Project-Based Learning and Problem-Based Learning in Physics to Improve 21st Century Skills (4Cs) of Middle School Students. Journal of the Physics Education Forum, 4(1), 89–105.

Sahidah, M., & Sulistyani, A. (2022). Application of 21st Century Skills in Learning during the Covid-19 Pandemic for Class V Elementary School students of Haurgeulis Muslim Association. SALAM: Social and Cultural Journal of Syari'i, 9(1), 111–120. https://doi.org/10.15408/sjsbs.v9i1.24612

Supardin, S., Haris, I., & Suking, A. (2022). Analysis of Principal Managerial Capabilities in Developing Junior High Schools in Pohuwato District. Aksara: Journal of Non-Formal Education, 8(1), 281. https://doi.org/10.37905/aksara.8.1.281-290.2022

Widiantoro, S. (2020). Development of the Ecoprint Learning Model to Improve 21st Century Skills in Elementary Schools. Journal of Basic Education Didactics, 4(3), 759–778. https://doi.org/10.26811/didaktika.v4i3.142

Wijiyanti, N., & Hartoyo, A. (nd). DEVELOPMENT OF STEM-BASED STUDENT WORKSHEETS TO IMPROVE CREATIVE THINKING SKILLS IN JUNIOR HIGH SCHOOLS.

Wiranata Sa, A., & Purbojo, R. (2020). TEACHER SELF-EFFICIENCY, UNDERSTANDING OF STUDENT CHARACTER, AND UNDERSTANDING OF 21ST CENTURY SKILLS AS PREDICTORS OF FACILITATOR TYPE OF TEACHING STYLE. 7(2), 2580–1228. https://doi.org/10.24854/jpu02020-300