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Optimizing Project-Based Learning in Developing 21st Century Skills: A Future Education Perspective

Adam Mudinillah [1*], Dedi Kuswandi [2], Erwin [2], Sugiarni [2], Winarno [3], Annajmi [4] and Sam Hermansah [5]

[1] Islamic Education Department, Islamic Higher Education of Al-Hikmah Pariangan Batusangkar, Tanah Datar, 27264, Indonesia.
[2] Educational Technology, Universitas Negeri Malang, Malang, 65145, Indonesia.
[3] Pendidikan Administrasi Perkantoran, Universitas Sebelas Maret, Jawa Tengah, 57126, Indonesia.
[4] Pendidikan Matematika, Universitas Pasir Pengaraian, Riau, 28560, Indonesia.
[5] Pendidikan Bahasa Inggris, Universitas Muhammadiyah Sidenreng Rappang, Sulawesi Selatan, 91651, Indonesia.

Corresponding author*: e-mail: adammudinillah@staialhikmahpariangan.ac.id.

ABSTRACT: Current times show that 21st century skills influence the effectiveness of project-based learning from the perspective of future education. This can support the resolution of any problems faced by students in learning. Therefore, students need to improve 21st century skills as a guide to prepare themselves for life in the future. This research aims to optimize project-based learning in developing 21st century skills and creating innovative new perspectives on increasingly sophisticated future education, helping students develop more complex and in-depth thinking skills to provide practical solutions related to any form of learning. The method used in this research is quantitative method. The steps are to create statements related to tips for improving 21st century skills from the perspective of future education through google forms and filled in by high school students. The collected data were inputted and processed using the SPSS application. The truth of the data can be proven by the statements made on the google form which are adjusted to the facts that occur in students. The results explain that 21st century skills play an important role in today's modern learning process. These skills can equip every student to prepare themselves and realize all the demands of life that change according to the times. The conclusion of this research is that teachers are advised to better understand 21st century skills to teach students how to adapt to increasing technological changes, expand learning opportunities, and enrich students' learning experiences through skills practiced by teachers.

Keywords: 21st Century Skills, Project-Based Learning, Education Perspective, Learning and Education, Future Education.

I. INTRODUCTION

Currently, some students still need to learn 21st-century skills. If you calculate the percentage of students who understand, only a few people understand, and many students need help understanding technological developments. This is because students need more understanding and ability regarding technology [1]. However, there are also several other causes, namely educational institutions, that still need more facilities for the learning process, which is also the cause of the need for more knowledge about project-based learning [2]. These educational facilities include everything needed for learning at school. For example, schools in remote villages far from the internet will make it difficult for students to take computer-based exams. Meanwhile, schools located in urban areas have implemented computer tests.

Project-based learning is an instructional approach that emphasizes multidisciplinary, cross-disciplinary, and complex project work as the primary tool for learning. In project-based learning, students are given the opportunity to analyze problems in a structured and practical way that enables students to develop and address 21st century skills more effectively. This educational process requires students to complete tasks independently, communicate clearly, participate in group projects, and cooperate in a group environment, while still focusing on predetermined learning objectives.

Project-based learning from the perspective of future education can differ significantly from today's educational process [3]. Currently, learning still uses formal methods, with educators teaching directly. In the future, students will use more online-based learning media—skills emphasizing information technology and communication [4]. The learning process is not required at a designated institution but can be done remotely using the Zoom application, Google Meet, WhatsApp Video Call group, and many other applications. So, studying can be done anywhere without meeting the teacher face-to-face. Moreover, it can make the learning process at school more accessible for students.

The main advantage of project-based learning is the ability to involve students actively in the learning process through the use of real and relevant examples, which helps them understand the material better and increases critical thinking skills such as problem solving, analysis, and communication. This method also lessens the impact of peer pressure and coworker keterampilan because students generally work in groups to complete projects. In addition, project-based learning enables more individualized instruction, allowing students to explore their interests in more expansive and relevant contexts, fostering more motivation and focus throughout learning.

However, there are also drawbacks that must be considered. One of them is that project-based learning requires considerable resources, including longer time for planning and implementation, as well as access to technology and other supporting materials. This can be a challenge in resource-constrained environments. In addition, the effectiveness of project-based learning depends heavily on the quality of facilitation by teachers. Teachers need to have specific skills in project management, mentoring and assessment, which may require intensive additional training.

Future education allows students to develop their talent [5]. It will reduce Indonesia's ignorance rate in the future and make the country superior in science and technology [6]. Indonesia is a country that has many schools and universities that support the realization of a country's progress, giving birth to a quality generation in the future [7-11]. Education has a vital role in life, which can shape the behavior of each individual to be more moral [12] creating an innovation that can make it easier to do something that is considered very difficult to solve. Then, it will produce works that are very useful and have high buying and selling value, for example, by using items that are no longer useful into something useful.

Mastering technology thoroughly is one step to optimizing future education. Information can be accessed easily using social media and others [13]. When students already know technology, it will make it easier for students to interact with their friends [14]. This means that communication does not just have to be met; it can be done using the telephone, which can speed up and shorten the time spent [15]. Therefore, it is crucial to master every technology in the current era of globalization so that there is no gap between one party and another due to the carelessness of media users, which can have fatal consequences because of trivial problems. The role of 21st-century skills is also vital to producing critical thinkers who will become the nation's next generation and create change.

Misuse of social media often occurs among teenagers who have just turned young. For example, some students do good deeds to look good and want to be praised by others [16]. Students should be able to use technology wisely without committing fraud on social media [17]. The position of 21st-century skills is needed in responding to this problem; some people do something without ever thinking about the consequences that will happen next [18]. The position of 21st-century skills is needed in responding to this problem; some people do something without ever thinking about the consequences that will happen next [19]. It helps create learning that is more effective and efficient in everyday life. So, a teacher must try harder to make it happen in the teaching delivered at school.

The method that will be used is quantitative. A structured method starts with collecting, analyzing, and processing the data well [20]. Two studies discuss 21st-century skills. The previous research serves as material for consideration and enriches the discussion discussed by researchers [21]. It will also distinguish it from the research [21]. The research entitled Digital Education Transformation 5.0 through the Integration of Scientific and Technological Innovation was researched by Muhammad Yusuf Dwi Julianingsih [22] in 2023 in Banten which tells that technology can create a practical and interactive learning environment and also research entitled the role of technology as a learning medium in the 21st century which was researched by Sitaman Said [23], in 2023 which analyzes the role of technology as a learning medium.

The innovation that emerged was how students could use technology carefully without relying on social media, which would hurt their mindset. Understanding technology is necessary because every activity depends

on digital [24]. In the future, students will not be far from a product called a cellphone [25], So with this reality, researchers will create a learning model design that uses applications to make it easier for students to understand things [26]. Developing 21st-century skills is very necessary because, with this, students can think formally about all the events that occur and then can provide a solution when students encounter various challenges that exist in the face-to-face learning process.

A collection of questionnaires created by researchers in a Google form consisting of four parts is used to collect information, also called data. The first part begins with a section about the origin of the previous information taken or obtained [27]. After this, students are asked to assess an updated educational model with a future educational perspective. The highest point [28] is to determine how prepared students are to face this learning [29-34]. They start with excellent results and move to bad ones [35-37]. In the third section, the researcher creates several questions that students must answer students must answer, and the highest results also range from strongly agree to disagree strongly. Section 4 contains reinforcement regarding students' consistency in accepting the formulated design.

To determine how much percentage of students' ability to adapt to existing technology-based learning technology. Which allows students to develop every ability they possess [38-40]. The method used is a quantitative method. Who evaluated tips to be proud of the ability of 21 centuries of future education perspectives. The researcher hopes that a change in students' critical thinking ability through project-based learning will make students wiser in using social media in every situation. The biggest hope of researchers is that this article can be helpful for the general public and can also be material for future consideration for further researchers relating to the title made by researchers, namely optimizing project-based learning in developing education.

Optimizing project-based learning as a pedagogical approach in the era of future education brings a series of significant yet important challenges to overcome in order to develop the 21st century skills needed by students. Future education demands the integration of critical skills such as problem solving, critical thinking, collaboration, and effective communication, all of which can be nurtured through project-based learning methods.

However, challenges such as lack of resources, differences in teachers' adaptability in implementing new methodologies, and the need for comprehensive evaluation are barriers. In addition, adaptation of a flexible and relevant curriculum to the needs of a changing world is also a must. On the other hand, the reluctance of some educational parties to change traditional methods is a stumbling block in the implementation of project-based learning.

This research aims to explore and identify effective strategies for optimizing project-based learning in developing 21st-century skills. 21st-century skills, such as thinking critically, creativity, collaboration, communication, and problem-solving, are becoming increasingly crucial in facing future challenges. This project-based learning will help students learn independently. Focusing on the future of education perspective, this research will investigate how project-based learning can be used to develop these skills effectively. It is hoped that the research can help students and make learning easier. Project-based learning in the 21st century will also direct and shape students to learn in a more advanced direction and think critically.

The expected objectives in this research are first to analyze in depth the effectiveness of project-based learning in developing 21st century skills, including problem solving, creativity, collaboration, communication, digital literacy, and independent learning proficiency. Second to investigate how the project-based learning approach can be optimally integrated in the education curriculum to produce better learning outcomes that are relevant to future demands. Third to provide practical recommendations to teachers, schools, and education policy makers on the best strategies to implement and optimize project-based learning in an effort to develop 21st century skills in students. Meanwhile, the target of this research is the analysis of strategies and practices that can be applied by educators to increase the efficiency and effectiveness of project-based learning.

Research conducted by researchers found that the effectiveness of project-based learning on 21st-century skills plays a vital role in today's modern learning process. These skills can equip every student to prepare themselves and realize all life demands that change according to the times. Project-based learning has a huge positive impact and feedback on the skills of 21st-century students. Students are equipped with the right way to learn according to their needs, which can improve their skills.

II. MATERIAL AND METHOD

Research methods are a series of procedures, techniques and approaches used by researchers to plan, collect, analyze and interpret data in order to answer research questions or test hypotheses. Research methods are also a framework used to ensure that research is carried out systematically, objectively and reliably. Research methods provide guidance on how to gather information, validate findings, and draw conclusions that are based on strong evidence. Below the researcher shows the steps in conducting this research: Quantitative research flow diagram

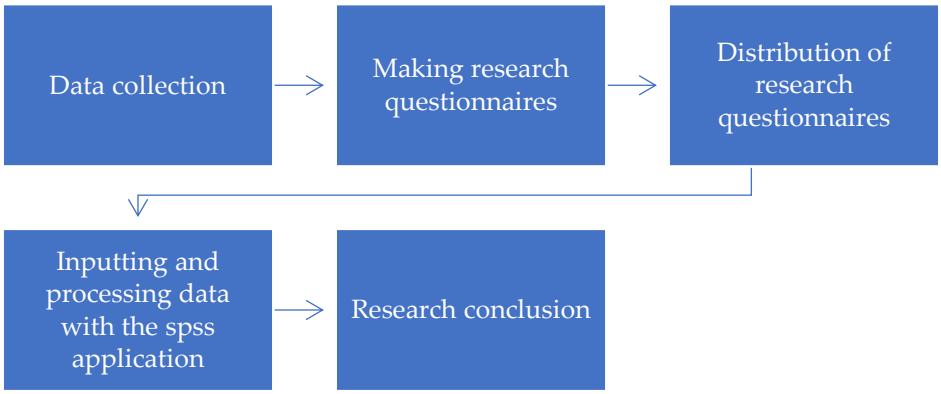

FIGURE 1. Flowchart of quantitative research

1. RESEARCH DESIGN

This research uses a quantitative approach method. The quantitative method uses statistical data that can be tested for validity. This quantitative method is identified with numbers. This quantitative method collects structured data that can be measured/calculated. Quantitative methods are suitable for this research to determine the optimality of project-based learning in developing 21st-century skills and creating a new innovative perspective on future education that is increasingly sophisticated, helping students develop more complex and in-depth thinking skills to provide a more sophisticated solution. Compelling about all forms of challenges that occur in the world of education. This approach, which is formulated in the form of a Google form, includes a statement containing ways that can be done to optimize project-based learning in developing 21st-century skills through an educational perspective in the future [41]. The method used to get a new idea is then processed into research that can be proven by the facts that occurred. This collection technique tests the feasibility of 21st-century skills in increasing the effectiveness of education in the future [42]. Quantitative methods can also be interpreted as a research stage that begins with creating a questionnaire containing 20 questions, which must be filled in for each question without leaving one question out of this research. Then, each answer the student gives is processed using the SPSS application. The accuracy of the data obtained can be proven through a Google form formulated by researchers. The researcher also input the highest and lowest results from the questionnaire distributed to each student. Then, conclude the statement that can be used as a reference for this research. This research is expected to provide a broader and deeper understanding and insight into how project-based learning can be optimized to develop 21st-century skills in the world of education in the future.

2. RESEARCH PROCEDURE

The first step this research took was to fill in the questionnaires of male and female students in classes XE. 1 and XE. 2 in the senior high school, Public Senior High School 2 Sungai Tarab. Then, for each questionnaire filled in by students. The questionnaire was created via Google Forms and contains statements that relate to project-based learning in developing skills. The questionnaire consisted of 20 statements, each separated into two parts consisting of 10 statements each. The questionnaire is then distributed to students. Students will fill out the questionnaire according to the actual circumstances and conditions. The questionnaire was distributed to students online. From the beginning, the researcher created the questionnaire until the results were achieved,

which the researcher considered had met the results expected by the researcher. Then, the researcher also paid close attention to ethics when making questionnaires that used excellent and polite language. So students can fill out this questionnaire in a short time [43], which makes it easier for researchers to study various problems that will be faced by students in the process of developing 21st-century skills, which are very useful for students' future lives in organizing a structured and planned life according to the plans that the students have prepared. So that students can think using the cognitive abilities of every student in a high school located in the Sungai Tarab sub-district. After the data is collected from the results of the questionnaire filled out by students, the next step is to process the data obtained using SPSS. Finally, the data that has been processed can then be analyzed, and conclusions drawn on whether project-based learning can optimize students' skills in the 21st century in the future or not.

3. RESEARCH SUBJECT

The subjects of this research were students of public Senior High School 2 Sungai Tarab; the research samples were students of class X IPS. The role of the researcher is to collect every answer given by students. The researcher was also assisted by social studies teachers who taught in class X Sungai Tarab, especially educators who taught in technology. This research aims to measure students' abilities using questions in the form of tests and then calculate from the highest series of points obtained to the lowest series of numbers [44], [45]. The researcher then inputs the scores obtained through the research subjects, which become a reference for determining the 21st-century skills possessed by students. The research considers every answer given by students, which aims to assess the influence of 21st-century skills on future educational perspectives. So that students can find the right solution regarding project-based learning, which can accelerate learning and lead to effective and efficient learning in a formal educational institution.

4. RESEARCH ETHICS

Research ethics is a principle of norms (rules) and values that regulate the behavior of researchers in conducting research. The ethics of this research were carried out to ensure the welfare of each individual involved and participating in the research. Apart from that, a researcher needs to maintain the confidentiality and trust of the parties involved in the research. In research ethics, a researcher must not impose his wishes on a party to obtain data. Researchers who adhere to ethics in research can contribute to developing project-based learning and 21st-century skills in education in the future. Of the approximately 300 students registered at public senior high school 2 Sungai Tarab, only 50 students contributed to this research. Of this amount [46]. Fifty students participated in this research, of which 25 were men and 25 women, with a maximum age of 19 and 18. The participants' data collection came from villages or jorongs close to Public Senior High School 2 Sungai Tarab. This research has received permission from teachers who teach social studies subjects. This research uses several research ethical principles. Firstly, there is no compulsion to fill out the questionnaire. This research only hopes to encourage the volunteerism of students and students studying here. Then, each question must be answered thoroughly without leaving anything out of the questionnaire. This formula supports and upholds rights, and there is no coercion. This was done to ensure that the participants understood the essence of this research. Of the 50 participants, 80% expressed willingness to complete this questionnaire.

5. DATA COLLECTION TECHNIQUE

The technique used by researchers in collecting data is to obtain various information that can be measured, compared, and calculated carefully through a Google form containing a questionnaire filled in by 50 high school students in the Sungai Tarab sub-district. Data was collected in the first semester of the 2023/2024 academic year. After obtaining permission to conduct research from the social studies subject teacher, the online questionnaire link was distributed to students taking class XE.1 and classes collected from research field respondents. The questionnaire data was then downloaded into an Excel file and transferred to SPSS [47]. Twenty questions were to be studied, and the final score data was recorded in the SPSS application, which can be verified. Then, summarize it as interestingly as possible so that readers are interested in reading the article written by the researcher. Through the SPSS application, researchers will also present information in tables and graphs equipped with narratives to make it easier for readers to understand the contents. By using the SPSS

application, data analysis steps can be carried out more effectively, and the validity of the data that has been processed can be tested.

6. DATA COLLECTION AND ANALYSIS

Then, the data that has been collected is inputted and processed using the SPSS application. They were distributed in the form of tables and also diagrams that can calculate the scores obtained by students. The data is analyzed by comparing research on optimizing project-based learning in developing 21st-century skills from a future education perspective with previous research [48]. Data is presented as average scores and percentages [49]. Then, the data was tested using a one-way ANOVA test, which compared the scores obtained by each group who filled out each statement related to the questionnaire created by the researcher. The researcher also considered the scores obtained by each student who filled out the questionnaire that the researcher previously completed. It will always include answers given by students from the beginning of filling out the questionnaire until the last student fills out this questionnaire. Furthermore, the researcher will summarize the results in an accurate conclusion. The data obtained and processed can be seen in the table below.

Table 1. Category developing 21st-century skills.

No.	Gain category	Value interval
1	Agree	>90%
2	Agreed	70-80%
3	Disagree	50-60%
4	Disagree	0-40%
Total		100%

From Table 1 above, it can be understood that in developing 21st Century skills towards student skills, there are several assessment categories, namely the very agree processing category, namely with a value interval of >90%, the agree category with a value interval of 70-80%, the less agree category with a value interval 50-60%, and the category of not agreeing at all is 0-40%. So, for the total interval, the overall value is 100%.

Table 2. Details of the research sample

No	Student Batch	Gender		Total
		Male	Female	
1	X.E. 1	10	10	20
2	X.E. 2	15	15	20
	Total	25	25	50

In table 2 above, it can be explained that the details of the sample in this study consisted of students from classes X.E 1 and X.E 2. For class X.E1, 10 men and 10 women were sampled. Meanwhile, for class X.E 2, 15 male samples were taken, and 15 female samples were taken. The total for each class is 20 people for class X.E 1 and 30 people for class X.E 2. The total number is 50 people.

III. RESULT

Education in the 21st century is essential for educators to know and understand because this will positively impact students. Therefore, the researcher asked several questions and conducted research related to the 21st century in the school environment so that researchers could find out how significant the influence of the 21st century is in the school environment. The following are some questions given to students

Table 3. Optimizing project-based learning in developing 21st century skills in class X.E.1

No	Statement	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
1	Project-based learning can help develop 21st-century skills	51,6%	48,4%	0%	0%
2	21st-century skills can be contributed to future learning discussions	41,9%	58,1%	0%	0%
3	21st-century skills have a significant influence on students' mindsets in doing things	41,9%	54,8%	0%	0%
4	Future education relies heavily on the digital environment	38,7%	61,3%	0%	0%
5	Technology can be integrated into project-based learning to deepen the development of 21st-century skills	38,7%	61,3%	0%	0%
6	Project-based learning relies heavily on technology	35,5%	64,5%	0%	0%
7	21st-century skills can equip students to take every level of education	45,2%	54,8%	0%	0%
8	21st-century skills can make it easier for students to face various problems in learning	35,5%	61,3%	4%	0%
9	Effective communication can optimize project-based learning	48,4%	51,6%	0%	0%
10	Applying a disciplined attitude can optimize project-based learning	41,9%	58,1%	0%	0%

Based on Table 3 above, it can be explained that the questionnaire containing the statement was created via Google Forms. The question consisted of 10 statements related to optimizing project-based learning to develop skills in the 21st century in the future. The assessment categories in the questionnaire comprised four categories: strongly agree, agree, disagree, and strongly disagree. The questionnaire containing ten statements was distributed online to students in class.

The most dominant score of the ten statements in the questionnaire is the agree category, and the second highest score is the strongly agree category. There is a slight possibility for the disagree and disagree entirely categories. This shows that every student at school must understand tips for developing 21st-century skills so that in the future, everything goes smoothly with technology issues, as seen in Table 1 of ten statements proposed by researchers about optimizing project-based learning. Statements 4, 5, 6, and 8 produced the highest agreement category. With a gain of 64.5%, it is ranked first in the table below. Project-based learning relies heavily on technology, which plays a significant role in everyday life. If technology is removed from life, it will hinder the pace of development of life.

Second, 21st-century skills can make it easier for students to face various problems in learning. 61.3% agreed; the result was strongly agreed, 35.5% under the agreed category. This shows that in project-based learning, many problems will arise due to changes and increasingly rapid technological developments because modern countries such as China, Japan, and others have launched various tools that can make it easier to carry out daily activities. These days, life has started to rarely use human power, which now only uses robots to carry out activities like humans do. The research results strongly show that by understanding 21st-century skills, every problem or challenge can be resolved, and valuable solutions related to each issue can be provided to improve 21st-century skills from a future educational perspective.

Item 5, namely technology, is 61.3% integrated into project-based learning to deepen the development of 21st-century skills. In project-based classes, technology can help students create an exciting platform to be used as an exciting learning medium. Technology has also opened a path to revolutionary education. The real world

is constantly changing according to the needs of today's modern life. When the internet is available, students will find it easier to search for knowledge and open communication in all social networks, which can change mindsets in learning and integrate with all citizens in the school environment. In today's life, change is so rapid that what is known today does not necessarily mean that tomorrow will be like this again.

Referring to the lowest category, there is a firm agreement on item number 6 with 35.5%, in this case referring to project-based learning, which depends on technology. However, many things can still improve the quality of project-based learning, such as selecting relevant projects. Projects that can be adapted to students' needs when face-to-face learning takes place at school. This project can encourage students to understand future education perspectives; the most important thing to do is carry out an evaluation or what is also called an assessment of the learning so that teachers know the extent of students' understanding of 21st-century skills that can support students to face sustainable learning and apply it in real life contexts.

Table 4. Optimizing project-based learning in developing 21st century skills in class X.E. 2

No	Statement	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
1	Learning motivation is very important in future education	65%	35,5%	0%	0%
2	Applying different learning styles can optimize project-based learning	35%	61,3%	0%	0%
3	Joint learning methods outside the classroom can be done to optimize project-based learning	54,8%	41,9%	0%	0%
4	Joint learning methods outside the classroom can be done to optimize project-based learning	54,8%	45,2%	0%	0%
5	Educators or teaching staff are required to be more creative in delivering learning materials	64,5%	35,%	0%	0%
6	Increasing learning and evaluation of learning can optimize project-based learning	45,2%	54,8%	0%	0%
7	Obeying all the rules available at school can improve the quality of education in the future	61,3%	38,7%	0%	0%
8	Project-based learning can be optimized by creating online-based learning media	48,4%	51,6%	0%	0%
9	Student involvement in learning discussions can optimize project-based education	41,9%	58,1%	0%	0%
10	Adequate facilities and infrastructure can optimize project-based learning	58,1%	41,9%	0%	0%

Based on Table 4 above, Bonaire can contain the statement made through Google Forms. The question was asked, and as many as ten statements were made relating to considering project-based learning to develop skills in the 21st century in the future. The assessment category in the questionnaire consists of 4 categories: strongly agree, agree, disagree, and strongly disagree. The 10 -statement is distributed online to Such students in class X.E.2. The results of the answers given by the students are already listed in Table 4, with a different percentage of assessment for each questionnaire. Furthermore, the presentation researchers are below for the exposure of each statement that students have answered.

Table 4 can be concluded by referring to the highest acquisition, namely from the category strongly agreeing with item 1 with a score of 65%. They are saying that motivation to learn is essential in future education. When

learning occurs, the teacher must have a good value in giving suitable examples. The role of motivation is huge in learning because encouragement will make Shiva more enthusiastic in facing learning that takes place from morning to evening. So, when educators provide a splash of words, it will add to students' enthusiasm for the teaching and learning process in the class. Thus, the teacher must better understand every attitude and behavior of every citizen in the school to create a conducive class atmosphere. The atmosphere supports the carrying out of what students desire in learning.

Educators or teaching staff must also be more creative in delivering learning materials. In interactive learning, a teacher, a so-called educator, must understand what students need in learning—contained in item number 5 in the acquisition of 64.5%. Educators must be able to create a learning media that students can access wherever they are. So, a student does not have to learn in an institution, but students can still learn even at far distances. For example, Video Call. Groups that can make students and teachers also discuss matters relating to student learning. Thus, learning will not be focused on a particular place but can also alleviate the situation of students far from the reach of residences far from school, which is access that can accommodate the implementation of project-based learning in the future.

The lowest acquisition in this table is in the agreement category; it is an item that contains project-based learning that can be optimized by creating online-based learning media. Integrated learning media can make students more excited and not quickly tired in the learning process, providing comprehensive resource access. Students can find information about something wherever it is guaranteed, which will expand the experiences that exist in students. School activities now greatly emphasize digital insight, which must be developed by every student in learning. Therefore, students are expected to be able to optimize everything that the teacher says during learning. So, students are required to explore 21st-century skills further in the future education perspective.

The second lowest acquisition lies in item number 2, which is included in the category of solid agreement, with an acquisition of 35%. This means that applying different learning styles can optimize project-based learning, which is the lowest acquisition in this study. Student learning styles are determined mainly by educators who teach in an educational institution. In every educational institution, there are many learning models. For example, they are learning that only listens to everything that is conveyed by the teacher and learning that only uses instrument questions to assess how students understand what is conveyed. Then, the results will drive students to learn more actively and provide enthusiasm to sacrifice for students' progress in project-based learning from the perspective of future education. Students must be able to support implementing practical learning that can advance their abilities. The limitation of this research is that researchers only conduct research related to 21st-century skills. Researchers also hope that further researchers can discuss other skills.

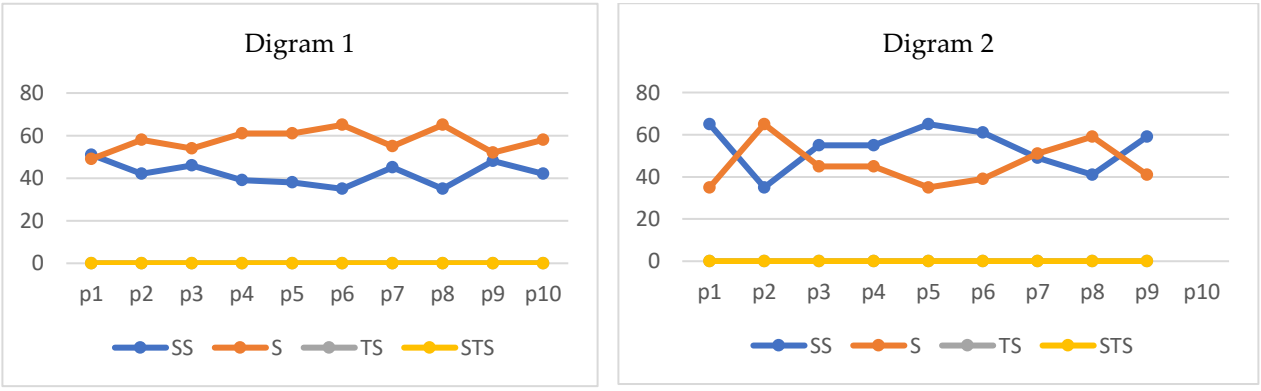

FIGURE 2. Obtaining data from the SPSS application from Class X.E.1 and Class X.E.2

Diagrams 1 and 2 are diagrams obtained from the SPSS application. The diagram is obtained from the questionnaire results that students filled out. Then, the data is processed and can be varied into form diagrams, as in the picture above. Diagram 1 is the result obtained from the questionnaire given to class X.E.1, and

diagram 2 is the result obtained from the questionnaire given to class X.E.2. The color information for blue means strongly agree, red color agrees, gray Abu Tidan agreed, and Kuring's color strongly disagreed.

Table 5. One way anova test class X.E. 1

ANOVA						
		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
X.01	Class X.E 1	4,208	8	,526	4,509	,006
	Class X.E 1	1,750	15	,117		
	Total	5,958	23			
X.02	Class X.E 1	4,333	8	,542	5,417	,002
	Class X.E 1	1,500	15	,100		
	Total	5,833	23			
X.03	Class X.E 1	7,708	8	,964	1,563	,217
	Class X.E 1	9,250	15	,617		
	Total	16,958	23			
X.04	Class X.E 1	4,333	8	,542	5,417	,002
	Class X.E 1	1,500	15	,100		
	Total	5,833	23			
X.05	Class X.E 1	4,625	8	,578	8,672	,000
	Class X.E 1	1,000	15	,067		
	Total	5,625	23			
X.06	Class X.E 1	4,458	8	,557	16,719	,000
	Class X.E 1	,500	15	,033		
	Total	4,958	23			
X.07	Class X.E 1	5,958	8	,745	.	.
	Class X.E 1	,000	15	,000		
	Total	5,958	23			
X.08	Class X.E 1	6,583	8	,823	16,458	,000
	Class X.E 1	,750	15	,050		
	Total	7,333	23			
X.09	Class X.E 1	5,958	8	,745	.	.
	Class X.E 1	,000	15	,000		
	Total	5,958	23			
X.10	Class X.E 1	4,083	8	,510	4,375	,007
	Class X.E 1	1,750	15	,117		
	Total	5,833	23			

Table 5 above is the result of data analysis through the SPSS application for data analysis taken from the One Way Anova class X.E.1. Test One Way Anova Test is a statistical method used to compare the average. For Niaki F, the results of the statistics test in Anova that measures group comparisons are in the table. The greater the F value, the greater the possibility of group differences.

Table 6. One way anova test results class X.E. 2

ANOVA						
		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
	Class X.E 2	2,400	4	,600	.	.
X.01	Class X.E 2	,000	5	,000		
	Total	2,400	9			
	Class X.E 2	7,600	4	1,900	.	.
X.02	Class X.E 2	,000	5	,000		
	Total	7,600	9			
	Class X.E 2	2,100	4	,525	.	.
X.03	Class X.E 2	,000	5	,000		
	Total	2,100	9			
	Class X.E 2	2,100	4	,525	.	.
X.04	Class X.E 2	,000	5	,000		
	Total	2,100	9			
	Class X.E 2	2,100	4	,525	.	.
X.05	Class X.E 2	,000	5	,000		
	Total	2,100	9			
	Class X.E 2	2,400	4	,600	.	.
X.06	Class X.E 2	,000	5	,000		
	Total	2,400	9			
	Class X.E 2	2,500	4	,625	.	.
X.07	Class X.E 2	,000	5	,000		
	Total	2,500	9			
	Class X.E 2	2,400	4	,600	.	.
X.08	Class X.E 2	,000	5	,000		
	Total	2,400	9			
	Class X.E 2	2,400	4	,600	.	.
X.09	Class X.E 2	,000	5	,000		
	Total	2,400	9			
	Class X.E 2	2,500	4	,625	.	.
X.10	Class X.E 2	,000	5	,000		
	Total	2,500	9			

In Tanel 6 above is the result of data analysis through SPSS apiliation. The data analysis is taken from the One Way Anova class X.E.E 2. Test One Way Anova Test is a statistical method used to compare the average. There are five categories in that. The category is Sum of Squares, DF, Mean Square, F, and Sig. For the results obtained can be seen from the above.

IV. DISCUSSION

We are optimizing project-based learning in developing 21st-century skills: future education perspectives.

This study found that project-based learning levels can help students develop 21st-century skills. In project-based learning, students face technologies connected to millennial times [50]. Through this method, students not only get the sciences related to technology but will also be able to change each student's mindset. An innovative idea will make a beneficial renewal today that lives all digital. At present, technology capabilities must be studied and understood in order to be able to contribute to the world that is increasingly connected to the perspective of future education so that 21st-century skills can be contributed to every discussion conducted by students in the learning process both teacher discussions with students, as well as student discussions with other students who are in the school environment that can socialize well.

Interaction between students and other friends is also an essential part of education. A good relationship will make it easier to share every idea owned, for example, tips to increase the spirit of learning in the classroom. Nowadays, students tend to be bored when educators deliver learning materials with lecture methods that will make students sleepy when in the classroom [51]. When students have experienced 21st-century skills, they will have a free mindset of something, allowing them to make collaborative learning. Which students can enrich their understanding of what the teacher conveys in learning? This is one factor that makes future education very dependent on the digital environment around students.

This skill can equip students to pursue every level of education. The higher the educational process that is passed, it will be a heavy challenge. The challenges that students in the learning process will face are the differences in learning styles possessed by each student; some like to learn to use the method of playing while learning that can sustain the ongoing learning that is the goal of learning [52]. Make students understand what the teacher conveys more quickly in relation to face-to-face learning material at school. Then there are other challenges, namely students needing help mingling with their classmates, which makes students afraid or inferior to tell stories to other friends about what the student feels. He only chooses to harbor everything he feels so that it can be fatal in the future.

For every problem that students pass, teachers must be able to make an approach considered by Nisa to solve every problem faced by students. The teacher must create good communication with his students. In order to feel comfortable discussing every problem experienced by students and then discussing everyone who is up in his heart, an educator must also provide a significant solution so that students do not experience inner pressure or stress and face the problems they feel. Cooperation between the school and parents is also a way to help students overcome their difficulties. Educators need to learn the character of students with special needs only owned by sure students and always be loyal friends to fulfill what these students need wherever they are.

Emphasizing disciplinary attitudes can also optimize project-based learning. Every educational institution has rules that students must obey. For example, students must start learning according to the clock that has been determined. A disciplinary attitude will be necessary for students to develop the ability to manage time well without wasting time that is thought to be unnecessary. Disciplinary attitudes can also help students develop good learning hobbies, for example, by making a design about what they will do tomorrow, then evaluating everything that is done before, which will be a benchmark in the career development that students own and make more confidence To what is owned, as well as being grateful for whatever happens in this world, without complaining the slightest of what has been destined for him.

Motivation in the learning process is also a supporting thing to face future learning. When students experience adversity because the expectations of the students are too high, an educator must be able to lead to positive things without thinking about what has happened before to the student. With the right motivation, students will more easily be creative and create new things. Moreover, it arouses the spirit that has faded before and makes people more enthusiastic about innovation. Then, it gives birth to new works related to engaging media and learning. As for some media, for example, visual media. Students prefer to use image animation to remember everything the teacher says, then imagine it gave birth to a combination of concepts to reduce students' boredom in the process of studying.

A pleasant learning atmosphere supports the achievement of effective and efficient learning. An educator must be able to invite students to participate in learning actively by giving questions and then discussing the question to bring up a solution that can be used as material to deal with various problems. Learning methods outside the classroom can also be used because the level of boredom outside the classroom is smaller than in the larger class. Students will easily express themselves well outside the class, compared to the minimal class. The atmosphere also cannot make students more relaxed and relaxed because they are fixed on one seat position. Compared to outside the classroom, students can be more accessible to practice what the teacher conveys in the classroom learning class.

Educators or teaching staff must be demanded to be more creative in delivering learning materials. When explaining learning, a teacher is not only pegged to textbooks or notebooks. Teachers can take advantage of projector media to deliver materials. In order to balance the focus seen by students in the classroom. Most students think about what is not in the classroom, so when the teacher asks something related to learning, they will have difficulty answering it because they need to listen to what the teacher says when the teaching and learning process occurs. Creative learning can make the score of students' attractiveness to something increase.

So, it is essential to learn the skills of the 21st century so that students always feel happy when doing project-based learning, which is the perspective of education in the future.

What can also be done to increase the potential of 21st-century skills is to increase exercises and evaluations that can be supported in improving project-based learning at school. When educators provide test exercises as questions, it will determine the percentage of students who understand what the teacher said. Describe the weaknesses and strengths; this can assess students on those with different abilities. The teacher will help when students experience every learning challenge. Exercise also encourages responsible attitudes that function to prepare for exercises or examinations whose levels are higher than the tests conducted in schools. Thus, after the teacher holds a test and exercises related to learning, what must be done is to evaluate learning. Then, provide input in the form of suggestions and criticism that can improve students' future.

Obeying all school rules is also a form of obligation that students must carry out. When school residents obey everything related to school rules, of course, the quality of the school, or what is called the quality of the school, is better for examples of rules that are applied. For example, when Monday arrives, students can come on time before the ceremony begins. Punishing students is very appropriate, with sanctions providing a deterrent effect to students who violate it. Things like this will emphasize the importance of being present and starting to learn at school. The rules are often set to maintain the safety of students. With this, students will be able to avoid any undesirable and also endanger students when students are in a hurry to go to school.

In addition to teachers, students must also be able to create online-based learning media. Who uses Google Meet to discuss learning? The teacher can provide a helpful tutorial for students at school. In addition to Google Meet, students can discuss everything through Zoom and then the WhatsApp Video Call Group application. Compared to Google Meet, WhatsApp Video Call Group saves more internet data than will be available. Google Meet could use a larger quota and eat storage that can drain than the WhatsApp application. With the Zoom application, you can also enter every discussion delivered at school. This dispensation is far more profitable and accessible for every student far from school. Students learn face-to-face at school and through social media and social networks.

Discussions conducted to optimize project-based education in the future of education will determine what fate will be passed by students. When the lack of character education for students occurs a lot, a lack of ethics for older people causes moral damage because of arbitrary behavior towards people who should be respected. The position of manners is very high compared to science, and respecting older people is a religious norm that teaches the values of politeness and caring for others who need help. This can create a good environment full of character education for every student. It can be ascertained that future education will progress compared to today's education, which still has far less respect for teachers.

Some cases that have been faced related to ethics to teachers can be used as a learning for students, taking the wisdom of everything that has occurred to students. The example in This case is the student who said dirty things to his teacher but did not feel guilty toward him. The 21st-century skills not only discuss technology but also summarize all problems related to ethics and the morals of students. In the future, education, facilities, and infrastructure will be very much needed; an educational institution must have access to learning so that students can be comfortable in a classroom atmosphere equipped with facilities. For example, tables and benches are still considered very influential in students' thinking and developing their mindsets. Moreover, vice versa, if the facilities are inadequate, students will feel bored and more easily bored.

Apart from this study's findings and possible contributions, a limitation must be explained. The first limitation is the nature of this Qusur, which uses quantitative methods that most students fill in quickly and need to read the statements submitted by the researcher first. Students only fill quickly, without considering the purpose of this statement. Second, this quantitative research needs to consider who fills out this questionnaire, which causes the researcher not to summarize the table's gender differences. Therefore, there are still many things that could be improved in this research, and researchers expect that the next researcher can use qualitative findings whose data can be found clearly. This will allow for an accurate summary of research on optimizing project-based learning in developing 21st-century skills from a future education perspective.

V. CONCLUSIO

This study concluded that 21st-century skills are essential in preparing and equipping students to face various problems and challenges in the digital age. In project-based learning, many benefits can make it easier for students to explore innovations in solving a problem. This study also shows that optimizing project-based learning in the 21st century involved many factors in making a relevant future education. Make prophetic educators who understand every ins and outs of the digital environment. Moreover, it teaches students how to use technology intelligently. Without falling into a mistake that is considered to affect student learning styles. When teachers and students have implemented 21st-century skills, educators can make a comprehensive assessment. Which includes everything related to aspects of understanding, knowledge, skills, and also student attitudes

This approach will also produce every student who has graduated from upper middle school who can compete with every graduate in all countries. The place of learning is not an obstacle to innovating, but the ability and the desire will make students make a dominant change using future education perspectives. Motivation and arrangement from the teacher accelerate the progress of a school. A teacher is a figure that students must emulate; every time the teacher is carried out, students will imitate what the teacher is doing. So, in optimizing, project-based teachers must be able to teach 21st-century skills to the maximum so that future learning can run optimally without any challenges or obstacles.

Ed must strive to develop 21st-century skills so that students are not easily contaminated with new things that can damage their morale. Most of them abuse social media, and students access more things that are not useful than studying related to learning. So, this research aims to change learning models into innovative learning that uses technology well. In the 21st century, skills have summarized everything with a project based on project-based learning. This equips students to be more mature in deciding something, solving problems with violence and solving problems with a cool head, watching everything that will be done with kinship, and finishing it together.

Consider the many positive impacts of developing 21st-century skills. Among them, they can change the mindset that students own. This mindset will determine how the lives of students in the future. Suppose brilliant thinking can provide a discovery that can make it easier to carry out activities that are felt to be very complicated with the existence of technology. In that case, it will make it easier to do it because it is equipped with sophisticated tools that can realize goals of quality and moral education in the future. Subsequent researchers may be interested in conducting surveys that involve samples and more significant research subjects and use many supporting methods to investigate more profound 21st-century abilities. However, it is realized that students at the middle school level still need help understanding the skills of the 21st century.

There are several limitations experienced by researchers when conducting research. First, this study is limited in the generalizability of the findings due to its focus on a specific educational context that may not be representative of the diversity in the educational system as a whole. Discrepancies in research methodology, such as the selection of methods that may not be able to capture the full complexity of project-based learning experiences, may limit the interpretation of findings. Third, limited resources, whether in terms of time, technology, or administrative support, may also impact the implementation and analysis of this research.

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