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## Analysis of The Level of 21st Century Skills in Productive Teachers at SMK Negeri 2 Padang Panjang

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### ABSTRACT

In this 21st century, there are special skills that must be mastered by teachers, especially productive teachers, namely 21st century skills. This study aims to determine the level of 21st century skills possessed by productive teachers at SMK Negeri 2 Padang Panjang. The research method used is quantitative with survey research design. The study population was all teachers at SMK Negeri 2 Padang Panjang, and the sample was taken using purposive sampling technique so that the number of respondents was 26 people. Data analysis was carried out descriptively using index numbers. The research results of this study are the 21st century skill level of productive teachers at SMK Negeri 2 Padang Panjang is classified as in the high category, as evidenced by the high index scores obtained for life and career skills, learning and innovation skills, as well as information, media and technology skills. Based on the research results, productive teachers at SMK Negeri 2 Padang Panjang have a good understanding of the importance of applying 21st century skills in the learning process, as evidenced by the high index value obtained. However, there are several indicators of 21st century skills that are still below the average index value.

## 1. Introduction

Along with the times, various changes, demands, and challenges must be faced. Especially in the field of education, teachers face a variety of major challenges to present learning that is interesting and in tune with the conditions of millennial students and challenges to respond to learning issues related to behavior, methods, and learning processes Rohmat (2019).

Change also requires teachers to have the technological skills necessary to harness the power of computers and related technologies for effective teaching (Rayahu, 2023). Therefore, teachers play a very important role both in preparing students

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who are able to face various challenges and preparing students to enter the world of work (Ardila, 2023). To create skilled and competent graduates, teachers must be able to have various skills, especially 21st century skills. The skills needed by teachers are: life and career skills, learning and innovation skills, and information media and technology skills. As Mukaffan (2022) stated, education is an effort to improve the level of welfare of human life and is part of national development. The importance of knowing 21st century skills will be a demand to develop the human resources desired by the country.

Redhana (2019) states that 21st century skills are important skills that must be mastered by everyone in order to be able to face challenges, problems, life and careers in the 21st century. The importance of learning skills in the 21st century as a demand for human resource development can be done by updating the quality of learning and learning concepts. One of them is by creating learner-centered learning that is collaborative, contextual, critical thinking and integrated with society as stated by Hastuti (2021). Because teachers are the main spear in education to create quality human resources in the field of information technology and humanitarian aspects, they are able to compete fairly through their abilities and skills. Therefore, teachers must be able to master various skills so that their students have skills in critical thinking, collaboration, communication, creativity and innovation, as well as technology and concepts (Mardhiyah, 2021).

The role of teachers as learning resources, facilitators, managers, demonstrators, mentors, motivators, and evaluators must be balanced with technology utilization skills because 21st century learning has shifted to digital technology-based learning (Astutik, 2021). Educational institutions are encouraged to continue developing effective digital media to support learning activities (Hanum, 2023). To carry out this role, teachers must have competencies and qualifications that include knowledge of subject matter, teaching methods, learning and individual behavior, guidance and counseling, society, and general knowledge (Prayogi, 2019). One of the factors that determine the progress of education is what the teacher does in learning in the classroom (Bella, 2023).

One of the competencies that must be mastered and developed by teachers in the 21st century is pedagogical competency because in accordance with the progress of the times, in an era that is completely online and digital, education must immediately transform or change in a more advanced direction so as not to be left behind by other countries (Ramadhan, 2021). In addition, 21st century teachers must also have characteristics, respect the thoughts and opinions of students, be flexible, objective, easy to interact, tolerant and empathetic, aware of individual differences, reliably enterprising and able to lead which means the teacher as a learning manager as stated by Gelen (2018).

The rapid development of science and technology has a direct impact on human life, including in the field of education (Agusti, 2023). In the education system and the competencies needed in the world of work, educational institutions are required to be able to produce human resources (HR) who are competent in using technology in accordance with technological developments and changes in the

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learning system (Angraini & Aprilliana, 2019). Teachers must also be able to direct and guide students to develop their potential and be able to adapt to the development of information and communication technology. Not only relying on knowledge in the 21st century, skills also play a role in learning. The importance of 21st century teacher skills that must be possessed to minimize learning loss in certain situations (learning loss) is a foothold that must be examined, studied by all practitioners, lecturers, teachers, and educational institutions (Haris, 2022).

Based on observations and interviews that have been conducted at SMK Negeri 2 Padang Panjang. In life and career skills, it was found that teachers had difficulty adapting to environmental changes and had a monotonous learning style. This can affect students' interest and motivation in learning. Therefore, it is important for teachers to increase flexibility and leadership in getting along with others and pay attention to variations in learning methods to maintain learner diversity.

In learning and innovation skills, teachers were found to be less creative in utilizing digital media in learning. The utilization of technology such as infocus projectors can be improved by presenting applicable and more interesting material for students. Teachers also need to encourage the development of critical and creative thinking so that learning becomes more innovative. In addition, 21st century teachers must also ensure that teaching is improved through the use of technology and develop learners' abilities (Arifin, 2020).

In information, media and technology skills, it was found that teachers have limitations in mastering information and communication technology (ICT) such as the use of computers/laptops, LCDs and the internet. so it needs to be improved so that teachers are able to deliver learning optimally (Tridiana, 2020). Therefore, teachers need to equip themselves with a deeper understanding of the use of ICT in learning.

Research conducted by (Yulianisa, 2018) concluded that on average vocational teachers at SMK Negeri 2 Solok have implemented 21st century skills well in the categories of life and career skills, learning and innovation skills, and information, media, and technology skills. From the study, it can be seen that vocational teachers at SMK Negeri 2 Solok have implemented 21st century skills positively. Vocational teachers have a good understanding and are able to apply life and career skills, learning and innovation skills, and information, media and technology skills in learning. In addition, based on research conducted by (Tridiana, 2020) concluded that the skills of 21st century teachers at SMK Negeri 1 Tanjung Raya were interpreted well, this was seen from the aspects of life and career skills, learning and innovation, and information, media, and technology. Based on this, it is known that 21st century skills are needed by productive teachers.

The level of 21st century skills of productive teachers at SMK Negeri 2 Padang Panjang is unknown, therefore it is important to know the level of 21st century skills of productive teachers at SMK Negeri 2 Padang Panjang. This aims to ensure that SMK Negeri 2 Padang Panjang is able to produce graduates who are

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skilled, competent, and ready to face the demands of the world of work in the 21st century era. It can take strategic steps to improve learning and preparation of graduates in facing challenges and changes in the 21st century era. And can provide a clearer understanding of 21st century skills in productive teachers at SMK Negeri 2 Padang Panjang. This will allow the development of learning programs and improvement of teacher competencies to be more focused, so that SMK Negeri 2 Padang Panjang can produce graduates who are ready to face the world of work and make a significant contribution in the 21st century era. Based on this background explanation, this research aims to determine the level of 21st century skills in productive teachers at SMK Negeri 2 Padang Panjang.

## 2. Methodology

This research uses quantitative research with survey methods. The research was conducted at SMK Negeri 2 Padang Panjang in May 2023. The population is all teachers at SMK Negeri 2 Padang Panjang totaling 58 people. The sample was taken by purposive sampling method so that the research sample amounted to 26 people. The research instrument used is a questionnaire distributed to all respondents. The components of this study are: (1) Life and career skills include indicators of flexibility and adaptability, initiative and self-management, social and cultural interaction, productivity and accountability, and leadership and responsibility; (2) Learning and innovation skills include indicators of critical thinking and problem solving, creativity and innovation, communication and collaboration; (3) Information, media and technology literacy skills include indicators of information literacy, media literacy and ICT literacy.

In this study, the data analysis technique used was descriptive analysis using index value. The assessment method used is to calculate the index value of the perception of productive teachers of SMK Negeri 2 Padang Panjang towards 21st century skills obtained through a questionnaire. According to (Ferdinand, 2014:231) the index value can be calculated using the formula:

$$\text{index value} = ((F1 \times 1) + (F2 \times 2) + (F3 \times 3) + (F4 \times 4)) / 4$$

Description:

F1 = frequency of respondents who answered 1

F2 = frequency of respondents who answered 2

F3 = frequency of respondents who answered 3

F4 = frequency of respondents who answered 4

Therefore, instead of starting from 0, the number of respondents' answers starts from 1 to 10, so that the resulting index number will start from 10 to 100 with a range of 90, without the number 0. Using the three-box criteria (three-box method), a range of 90 three will produce a range of 30 to be the basis for interpreting the index value, as shown in table 1.

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Table 1. Index value criteria

Rate interval	Meaning
70,01% - 100%	High
40,01% - 70%	Medium
10% - 40%	Low

Source : (Ferdinand, 2014)

### 3. Results and Discussion

#### Results

The following descriptive analysis results for the 21st century skills variable of productive teachers of SMK Negeri 2 Padang Panjang can be seen from the index value results in Table 2.

Table 2. 21st Century Skills Level index value

No	Components of 21st Century Skills	Index Value
1	Life and career skills	86,58%
2	Learning and innovation skills	84,28%
3	Information, media and technology skills	84,88%
<b>Average Total Index</b>		<b>85,25%</b>

Based on table 2, the percentage of the overall index value of the level of 21st century skills of productive teachers at SMK Negeri 2 Padang Panjang. It can be seen that the 21st century skills of productive teachers at SMK Negeri 2 Padang Panjang already have a good understanding and know that 21st century skills are important to apply in learning. This can be seen from the acquisition of an index value of 85.25% with a high category. The lowest index value percentage was 84.28% in learning and innovation skills and the highest percentage was 86.58% in life and career skills.

#### a. Descriptive Life and Career Skills

Descriptive life and career skills of productive teachers at SMK Negeri 2 Padang Panjang can be seen in Figure 1.

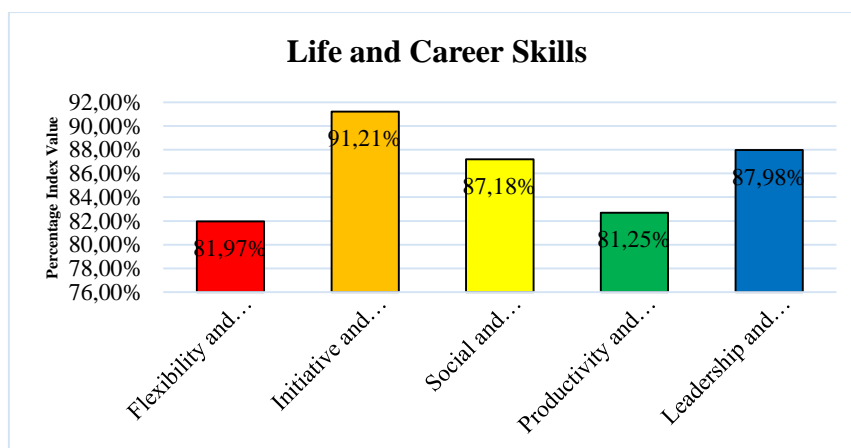


Figure 1. Life and Career Skills Index Value

Based on Figure 1, it can be seen that the index value of the 21st century skill level in life and career skills. With five indicators as follows: 1) Flexibility and adaptability which obtained an index value of 81.97%, 2) Initiative and self-organization which obtained an index value of 91.21%, 3) Social and cultural interaction which obtained an index value of 87.18%, 4) Productivity and accountability which obtained an index value of 81.25%, and 5) Leadership and responsibility which obtained an index value of 87.98%. Each indicator did not reach a percentage of 100% because there were still several questionnaire statements that were answered 2, 3, even 1 by respondents so that this affected the percentage of the index value. However, the indicators used are all categorized as "High" because the Life and Career Skills index value percentage of the average total index value obtained 86.58% has exceeded the index value criteria.

#### b. Descriptive Learning and Innovation Skills Component

Descriptive components of productive teachers' life and career skills at SMK Negeri 2 Padang Panjang can be seen in Figure 2.

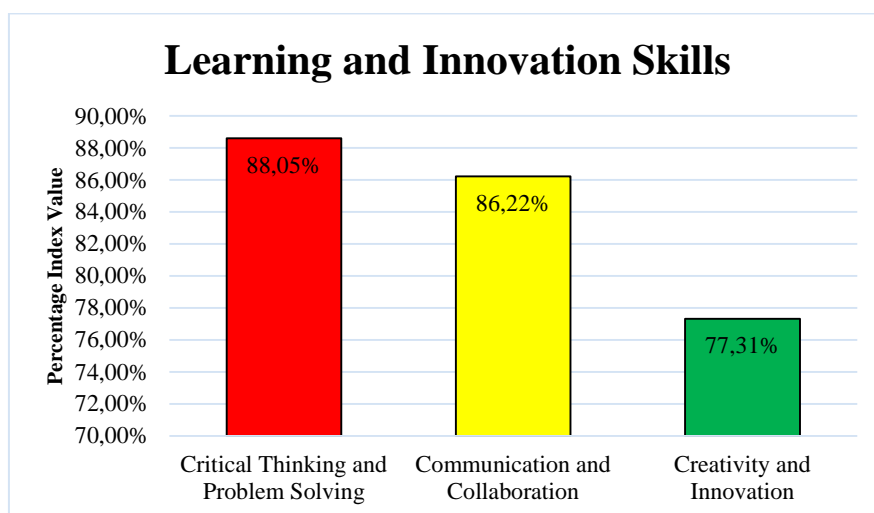


Figure 2. Index Value of Learning and Innovation Skills

Based on Figure 2, it can be seen that the index value of the 21st century skills level on learning and innovation skills. With three indicators as follows: 1) Critical thinking and problem solving which obtained an index value of 88.05%, 2) Communication and collaboration which obtained an index value of 86.22%, and 3) Creativity and innovation which obtained an index value of 77.31%. Each indicator did not reach a percentage of 100% because there were still several questionnaire statements that were answered 2, 3, even 1 by respondents so that it affected the percentage of the index value. However, the indicators used are all categorized as "High" because the average percentage of the total index value obtained 84.28% has exceeded the index value criteria.

#### c. Descriptive Component of Information, Media, and Technology Skills

Descriptive components of information, media, and technology skills of productive teachers at SMK Negeri 2 Padang Panjang can be seen in Figure 3.

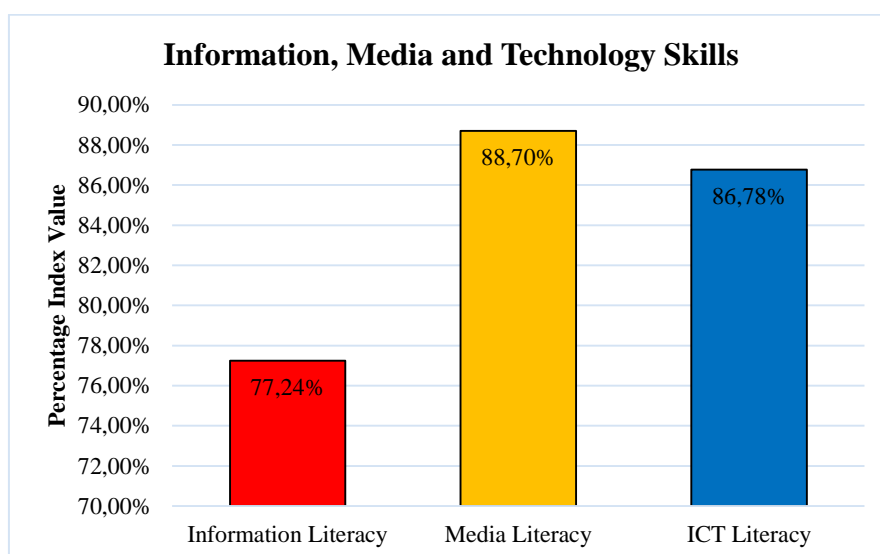


Figure 3. Index Value of Information, Media, and Technology Skills

Based on Figure 3, it can be seen that the level of 21st century skills in information, media, and technology skills. With three indicators as follows: 1) Information literacy which obtained an index value of 77.24% 2) Media literacy which obtained an index value of 88.70%, and 3) ICT literacy which obtained an index value of 86.78%. Each indicator did not reach a percentage of 100% because there were still several questionnaire statements that were answered 2, 3, even 1 by respondents so that it affected the percentage of the index value. However, the indicators used are all categorized as "High" because the average percentage of the total index value obtained 84.88% has exceeded the index value criteria.

### **Discussion**

Based on the results of descriptive analysis, it can be concluded that the level of 21st century skills of productive teachers of SMK Negeri 2 Padang Panjang in the 2022/2023 school year obtained an average of 85.25% with the category "High". Partnership For 21st Century Learning (2015) explains that the important components of 21st century skills in 21st century learning consist of: core subjects and 21st century themes, learning and innovation skills, information, media, and technology skills, and life and career skills.

#### **a. Life and Career Skills**

Based on the research results that have been obtained, the level of life and career skills of productive teachers at SMK Negeri 2 Padang Panjang is assessed using 22 statements grouped into 5 indicators. In table 2 it can be seen that the aspects of life and career skills of productive teachers are categorized as "High" with an average percentage of 86.58%. This shows that teachers already have a good understanding and are able to apply life and career skills including flexibility and adaptability skills, initiative and self-organization, social and cultural interactions, productivity and accountability as well as leadership and responsibility.

Life and career skills are important components in facing challenges in the world of work and daily life. Productive teachers at SMK Negeri 2 Padang Panjang have shown awareness and efforts in developing these skills, such as flexibility and adaptability, initiative and self-organization, social and cultural interaction, productivity and accountability, and leadership and responsibility. In addition, teachers also know the importance and have applied it to the learning process such as: being determined to learn throughout life, completing tasks well, accepting students' cultural differences, setting learning goals, applying discussion methods to learning and attending various teacher trainings.

Supported by the results of research (Yulianisa, 2018) shows that in the component of life and career skills productive teachers get a percentage of 80.19% which can be categorized as good. This shows that overall teachers have been able to apply life and career skills well. However, there are around 19.81% of teachers who are still lacking in applying life and career skills. This indicates that some teachers need further support and coaching to improve their understanding and application of these skills.

#### **b. Learning and Innovation Skills**

Based on the research results that have been obtained, the level of learning and innovation skills of productive teachers at SMK Negeri 2 Padang Panjang is assessed using 17 statements grouped into 3 indicators. In table 2, it can be seen that the aspects of learning and innovating skills of productive teachers at SMK Negeri 2 Padang Panjang are categorized as "High" with an average percentage of 84.28%. This shows that overall teachers have a good understanding and are able to apply learning and innovation skills including critical thinking and problem solving skills, creativity and innovation as well as communication and collaboration. In addition, teachers also know the importance and have applied it to the learning process such as: directing students to think critically, using communication to share goals, providing assessment and evaluation of tasks, and motivating students.

Learning and innovation skills needed in the 21st century according to the Partnership for Century Skills (P21) in (Zubaidah, 2020:3) : communication, collaboration, creativity, and critical thinking (The 4Cs), these skills make a significant contribution in helping to improve the achievement and competitiveness of students and graduates in the 21st century era. 21st century skills also play a role in increasing career ability (employability) and marketability (Redhana, 2019:4). Supported by the results of research (Yulianisa et al., 2018:6) on the learning and innovation skills component obtained 79.25% in the good category. However, there are 20.75% of teachers who are still lacking in applying learning skills and innovation.

#### **c. Information, Media and Technology Skills**

Based on the research results that have been obtained, the level of information, media and technology skills of productive teachers at SMK Negeri 2 Padang Panjang is assessed using 11 statements grouped into 3 indicators. In table 2, it can be seen that the aspects of information, media and technology skills of

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productive teachers at SMK Negeri 2 Padang Panjang are categorized as "High" with an average percentage of 84.88%. This shows that productive teachers at SMK Negeri 2 Padang Panjang already have a good understanding and are able to apply information, media and technology skills including information literacy skills, media literacy, and ICT literacy. In addition, teachers also know the importance and have applied it to the learning process such as: using learning media to support the learning process, utilizing digital technology and providing examples of material by utilizing videos and images in the surrounding environment. In addition, teachers have also kept up with the changes that have occurred.

Understanding and applying 21st-century skills is essential in dealing with the ever-changing world of business and industry. Along with technological advances and digital transformation, companies must continue to update and improve the tools and technology used. Therefore, teachers must have relevant 21st century skills in order to be able to prepare students to face the demands and challenges of the evolving world of work (Dharma *et al.*, 2021:229).

#### **4. Conclusion**

Based on the results of descriptive analysis of the 21st century skill level of productive teachers at SMK Negeri 2 Padang Panjang through observations, interviews and questionnaires which have been distributed to productive teachers at SMK Negeri 2 Padang Panjang, it can be concluded that the 21st century skill level of productive teachers at SMK Negeri 2 Padang Panjang is classified as in the high category, as evidenced by the high index scores obtained for life and career skills, learning and innovation skills, as well as information, media and technology skills. This shows that productive teachers at SMK Negeri 2 Padang Panjang know and have good abilities in mastering 21st century skills and have a good understanding of the importance of applying 21st century skills in the learning process, this is proven by the high index value obtained for life skills and career, learning and innovation skills, as well as information, media and technology skills.

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