



## Biology Teacher Creativity at SMKN Maros Regency in Solving Online Learning Problems by Utilizing E-Learning

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### ABSTRACT

This study employed a qualitative method to determine the teachers' creativity in utilizing e-learning media in online learning. This study implemented a survey approach that involved theories, relevant evidence, and existing facts by emphasizing the structural model (path) of the relationship between the variables studied. The subjects of this study were 20 students of SMKN 2 Maros and four homeroom teachers. The data collecting technique used by the researchers were questionnaires and online interviews. The data analysis technique referred to by Miles and Huberman, namely data reduction, data display, and conclusion drawing/verification. Based on research, the teachers' creativity at SMKN 2 Maros in utilizing e-Learning was 82.5 and 85 in the high creativity category. Therefore, the creativity in using e-Learning during the online learning process was high.

#### *Kreativitas Guru Biologi SMKN Kabupaten Maros Dalam Menyelesaikan Masalah Pembelajaran Online Dengan Memanfaatkan E-Learning*

**ABSTRAK:** Penelitian ini merupakan penelitian kualitatif yang bertujuan untuk mengetahui kreativitas guru dalam pembelajaran daring dengan memanfaatkan media e-learning dalam pembelajaran. Penelitian ini menggunakan pendekatan survey yang melibatkan teori, bukti yang relevan, fakta dan kenyataan yang ada pada penekanan model struktural (jalur) hubungan antar variabel yang dikaji. Subjek penelitian ini adalah 20 siswa SMKN 2 Maros dan 4 orang guru kelas. Teknik yang digunakan peneliti dalam penelitian ini adalah dengan cara angket, wawancara secara daring. Teknik analisis data yang digunakan yaitu reduksi data Miles and Huberman yaitu, data reduction, data display, dan conclusion drawing/verivication. Berdasarkan penelitian yang telah dilaksanakan kreativitas guru SMKN 2 Maros dalam memanfaatkan media e-Learning termasuk dalam kriteria kreativitas yang tinggi dengan skor 82,5 dan 85, artinya kreativitas guru dalam memanfaatkan media e-Learning selama proses pembelajaran daring tergolong tinggi.

### INTRODUCTION

Creativity is humans' potential as the manifestation of themselves (Masni, 2016). Creativity is part of the state of the soul of a

human being (Hairiyah & Mukhlis, 2019). It is important to know that creativity can emerge from anywhere, anytime, and by anyone (Arianto, 2020). Education relevant

to the needs allows creativity to increase (Oktiani, 2017). In teaching, an educator is an object of creativity for students and vice versa (Abdullah, 2017). Teaching and learning activities are strongly supported by the teachers' creativity, which can influence students' learning styles, especially in increasing learning motivation (Febriandar, 2018). The notion of creative ability can be interpreted as a real special talent at the end of age or adulthood. The teachers' creativity in learning can also increase students' learning motivation (Fitranty, 2017).

Creativity makes learning activities lively, dynamic, and non-monotonous (Hudah, 2017). Creative teachers will make students more enthusiastic about learning and avoid boredom (Tafonao, 2018). Students will be more motivated and pleased by creative teachers (Sari et al., 2021). One of a teacher's creativities is the use of learning media to deliver teaching materials during the class (Panut, 2017). Learning media is not only manual but also online learning media. As in the current era, teachers must have skills in Information and Technology (IT), such as operating a laptop to deliver online material (Riski, 2021).

Coronavirus Disease 2019 (Covid-19) is a new type of disease that humans have never previously identified. On January 30, 2020, WHO declared it a public health emergency (Wang, 2020). This pandemic emergency period requires the learning system to be replaced with online learning so that the learning process continues. Therefore, teachers must be more active and innovative in developing learning materials by utilizing learning media that support distance learning activities (Anas & Murti, 2021).

Online learning can be interpreted as teaching and learning activities by utilizing the internet as a distance learning aid (Fitriani et al., 2020). In online learning, facilities and infrastructure are needed in the form of laptops, computers, smartphones, and internet networks (Handarini & Wulandari, 2020). Online

learning also uses digital technology such as Google Classroom, study house, Zoom, video conference, telephone, live chat, or e-learning (Dewi, 2020). e-Learning or electronic learning is one technology implemented in virtual world education (Hanifah et al., 2020). The use of e-Learning in the online learning process is expected to increase students' motivation and learning outcomes because e-Learning is easily accessible by students anywhere and anytime. Students can also learn from each other (Islamiah & Widayanti, 2016).

Online learning is students' use of the internet network during the learning process (Indiani, 2020). Through online learning, students have study time flexibility (Agustin et al., 2021). Online learning is done virtually through available virtual (online) applications (Jayul & Irwanto, 2020). However, online learning is expected to focus on the competencies taught. Teachers must realize that learning is complex because it simultaneously involves pedagogical, psychological, and didactic aspects (Putria et al., 2020).

The relevant research was conducted by Aldo Antonius Jouwe et al. in 2018, which states that there was a significant correlation between teacher creativity and student cognitive learning outcomes, and the factors that affect teacher teaching creativity are the completeness of facilities and infrastructure in schools. Furthermore, the lack of training for teachers regarding methods and innovative learning models affected the knowledge and skills of biology teachers (Jouwe et al., 2018). Zakinah dkk, 2020 Nurfitri Zakinah et al, 2020 state that biology teachers at public high schools in Sumbawa District are in the very creative teacher category, proven by the achievements of each teacher's creativity indicators: open to new experiences, flexible thinking, appreciation fantasy, interest in creative activities, and belief in own ideas. Also, teacher creativity positively impacts students, including students who are enthusiastic about learning, easy to

understand the subject matter delivered when teachers use varied learning models and active students who ask questions in class during the biology learning process (Zakinah et al., 2020).

From the results of observations at SMKN 2 Maros, the interaction between science teachers and students was quite good. The online learning process used in schools was feasible as an e-learning media, although with some limitations. The teacher's material was the PPTs, animations, and e-books provided through online learning applications. This result showed that science teachers at SMKN Maros had enough creativity in solving online learning problems using e-learning media. Thus, knowing the teachers' creativity in solving problems in online learning and the factors that influence it is imperative.

## **METHOD**

The researchers employed qualitative research. This study implemented a survey approach that involved theories, relevant evidence, and facts by emphasizing the structural model (path) of the relationship between the variables studied. In this case, researchers looked for various references to support teacher creativity in utilizing e-Learning during the COVID-19 pandemic at SMKN 2 Maros. The researchers also observed and interviewed the teachers to obtain information about teacher creativity in e-Learning.

This research was carried out in the even semester of 2021/2022 at SMKN 2 Maros. The subjects of this study were 20 students of SMKN 2 Maros and four classroom teachers. The object of this research was the teachers' creativity in utilizing e-Learning at SMKN 2 Maros. The data collecting techniques used by researchers were questionnaires and online interviews. Researchers observed all activities, either using tools or not, during the research process. The observations were used to collect data on teachers' creativity in utilizing e-Learning during the COVID-19

pandemic era at SMKN 2 Maros. The instruments in observing the teachers' creativity made it easier for researchers to find out the teachers' creativity in utilizing e-learning media.

The questionnaire is a set of questions asked to informants or research informants (Murdana, 2022). The questionnaires were used to strengthen the data obtained from interviews with classroom teachers regarding teachers' creativity in utilizing e-Learning. The questionnaire used in this study was a closed (structured) questionnaire containing statements related to the teachers' creativity in utilizing e-Learning. The interview is a dialogue by the interviewer to obtain information from the interviewee or resource person and dig up data directly to get deeper and more accurate information (Umar, 2019). The researchers interviewed the science teachers. The instrument used during the interviews was an interview guideline about teachers' creativity in utilizing e-Learning.

Data analysis has three activities: data reduction, data display, and conclusion drawing/verification (Guswita et al., 2018). The data were analyzed using the technique proposed by Miles and Huberman. Miles and Huberman (Sugiyono, 2014) suggest that the activities in qualitative data analysis are carried out interactively and take place continuously until the data is saturated.

Reducing data means summarizing, choosing the main things, focusing on the important things, looking for themes and patterns, and removing unnecessary ones (Rejeki et al., 2020).

At the data reduction stage, the data obtained could be plenty. Therefore, it needs to be recorded carefully and in detail. The reduced data will provide a clearer picture and make it easier for researchers to conduct further data collection and look for it when needed.

The data display stage aims to make it easier for researchers to understand what is happening and plan the next steps based

on what has been understood (Putria et al., 2020). The last stage, conclusion drawing/verification, may or may not be able to answer the problem formulation formulated at the beginning (Puspitasari, 2020) because qualitative research is still temporary and will develop after the research is ongoing. Data collection techniques in this study were semi-structured interviews, open-ended questionnaires, documentation, and field notes. The questionnaire was distributed online via Google Form, while the interview was conducted using WhatsApp. Then, the researchers processed the data by analyzing, summarizing, and sorting the data according to the subject of teachers' creativity in utilizing e-Learning. Using this method, the researchers will determine the teachers' creativity in e-Learning. Presenting data is an activity to describe phenomena or conditions relevant to the data that have been reduced beforehand (Saadati & Sadli, 2019). Data presentation will make it easier for researchers to understand what is happening in the field and interpret the explanation. According to (Ismaningtyas,

2021), the scale of teacher creativity criteria can be seen in the following table.

**Table 1.** Teacher Creativity Questionnaire Assessment Score

Category	Score
Always	4
Often	3
Sometimes	2
Never	1

**Table 2.** Teachers' Creativity Scale Criteria

Category	0-40
0-40	Poor
41-55	Low
56-75	Medium
76-90	High
91-100	Excellent

## RESULTS AND DISCUSSION

This study was a qualitative descriptive study, where the data was obtained through questionnaires and interviews. The interviews in this study were semi-structured interviews conducted through WhatsApp. In this study, a close-ended questionnaire was filled in by the respondents. The questionnaires were distributed via Google Forms. The following is a table of data processing results from the teacher's creativity questionnaire.

**Table 3.** Results of the Biology Teacher Creativity Questionnaire

No.	Aspects Observed	Teacher Average Score				Criteria
		1	2	3	4	
1	Teachers can access e-Learning.	4	4	4	4	Excellent
2	Teachers can master e-Learning well.	3	3	4	3	High
3	Teachers can use e-Learning as an online learning medium to interact with students.	3	3	3	3	High
4	Teachers open learning well through e-Learning.	3	3	3	3	High
5	Teachers present material in PPT.	4	4	4	4	Excellent
6	Teachers use e-learning media.	3	3	3	3	High
7	Teachers attend to students through e-Learning.	3	4	3	4	High
8	Teachers provide assessments and feedback.	3	3	3	3	High
9	Teachers evaluate learning by asking questions via e-Learning.	4	4	3	3	High
10	Teachers can help students with difficulty accessing e-Learning.	3	3	3	3	High
Score		33	34	33	33	High
Maximum Score		40	40	40	40	
Total Score		82.5	85	82.5	82.5	
Criteria		High	High	High	High	

Based on the research, the creativity of biology teachers at SMKN 2 Maros in utilizing e-Learning media was high, with 82.5 and 85. Therefore, the teachers' creativity in utilizing e-Learning during the online learning process was high. The teachers can access e-Learning well by greeting students through the eLearning, checking student attendance, and providing teaching materials and assignments via e-Learning. Rothenberg states that creativity is the ability needed by a person to produce ideas and new and useful solutions to solve various problems experienced in everyday life (Armita, 2021). Wahyudin claims that creativity is the ability to produce something new and original that ideas, tools, and expertise can realize to find something new (inventiveness) (Khasanah & Ichsan, 2019). The biology teachers at SMKN 2 Maros were innovative enough to create a pleasant learning atmosphere to increase students' interest. Besides, the teacher's creativity in providing online material packaged in PPT with animation also motivated and encouraged students not to be lazy in following the learning process.

High teacher creativity during the pandemic cannot be separated from obstacles and encouragement (Yolanda & Farida, 2019). So, in this case, innovative thinking is needed to update and provide new ideas to use online learning media well through e-Learning. The driving factors based on the results of interviews are the facilities provided by the school. Every teacher answered that the school provided facilities for online learning, including WIFI, which supports online learning. Based on the interviews, teacher training was carried out to increase teachers' knowledge and creativity in the learning process during the pandemic using e-Learning. This fact was revealed by teachers who participated in workshops held by schools and other institutions. By participating in these activities, the knowledge and skills of teachers in terms of creativity were greatly improved. Teachers' skills in making

learning media greatly affect the learning process because attractive learning media motivate to learn (Muammar & Suhartini, 2018). For example, material packaged in PPT and video formats with animations can provide a fun learning effect for students. Students opined through the questionnaire that most teachers provided learning materials using innovative learning media to make the learning feasible. The last supporting factor was the supervision of the principal in providing a platform (Hastowo & Abduh, 2021). From the interviews, there were times when teachers had difficulty accessing platforms. The principals supervised the course of online learning through e-Learning. This action encouraged teachers to be more creative in solving problems related to e-Learning.

The inhibiting factor in the use of e-learning in this study was the inadequate quality of the internet network. Teachers' creativity in delivering e-Learning materials was hampered due to poor internet signal. Therefore, teachers chose to send materials through WhatsApp. Internet signals also constrained the students, so the learning process was disrupted. The next inhibiting factor was students who were less active in participating in online learning. From the results of the interviews, the activeness of students was also one of the factors of the teacher's creativity. If students are less active during online learning, the teacher will find obstacles in providing assessments. Based on the results of the interviews above, the teachers' creativity in using e-Learning can be hampered due to the quality of the internet network and unmotivated students. As a result, teachers found difficulty assessing students and resetting the timeframe for collecting assignments.

## **CONCLUSIONS AND SUGGESTIONS**

The creativity of biology teachers at SMKN 2 Maros in utilizing e-Learning belonged to the high creativity criteria with 82.5 and 85. Therefore, the teachers' creativity in using e-Learning during the

online learning process was high since the students' motivation and interest were quite high. However, some factors encourage and hinder learning. The driving factors were the availability of internet facilities, e-learning workshops attended by teachers, innovative learning media, and the direct involvement of school principals in supervising e-learning. The inhibiting factors were the internet network quality and students' activeness, which greatly affected the online learning process.

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