

# Impact of Continuous Training to Improvement 21st Century Teacher Professionalism

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## Article Info

### Keywords:

Training sustainable, teacher professionalism, 21st century teacher, competence, education

## ABSTRACT

Transformation education the 21st century demands that teachers have competence adaptive professional to development technology, application pedagogy innovative, as well as need participant continuous education developing. Research This aim For analyze influence training sustainable to improvement 21st century teacher professionalism in schools Senior High School (SMA) in Bandung Regency, West Java. Research use approach quantitative with method survey descriptive correlational. Population study totaling 185 high school teachers, while sample study a total of 120 teachers were determined use purposive sampling technique. Data collection technique carried out through questionnaire based Likert scale, observation, and documentation. Data analysis using statistics descriptive, normality test, linearity test, simple linear regression, hypothesis test, and coefficient determination with help SPSS application version 26. Research results show that training sustainable own influence significant to 21st century teacher professionalism with mark significance of  $0.000 < 0.05$ . The equation regression obtained is :  $Y=32.417+0.633X$ . The result is show that every improvement training sustainable will increase teacher professionalism. Coefficient determination show contribution training sustainable to teacher professionalism is :  $R^2=0.562$  or 56.2%, while the rest influenced other external factors research. Training sustainable proven capable increase competence digital pedagogy, creativity learning, ability collaboration, communication professional, as well as development teacher self in face challenge education 21st century. Therefore that, research This recommend strengthening sustainable, relevant teacher training programs with need learning, as well as integrated with development technology education to improve quality education in a way sustainable.

## Informasi Artikel

### Kata Kunci:

Pelatihan berkelanjutan, profesionalisme guru, guru abad ke-21, kompetensi digital, pendidikan

## ABSTRAK

Transformasi pendidikan abad ke-21 menuntut guru memiliki kompetensi profesional yang adaptif terhadap perkembangan teknologi, penerapan pedagogi inovatif, serta kebutuhan peserta didik yang terus berkembang. Penelitian ini bertujuan untuk menganalisis pengaruh pelatihan berkelanjutan terhadap peningkatan profesionalisme guru abad ke-21 pada Sekolah Menengah Atas (SMA) di Kabupaten Bandung, Jawa Barat. Penelitian menggunakan pendekatan kuantitatif dengan metode survei deskriptif korelasional. Populasi penelitian berjumlah 185 guru SMA, sedangkan sampel penelitian sebanyak 120 guru yang ditentukan menggunakan teknik purposive sampling. Teknik pengumpulan data dilakukan melalui angket berbasis skala Likert, observasi, dan dokumentasi. Analisis data menggunakan statistik deskriptif, uji normalitas, uji linearitas, regresi linear sederhana, uji hipotesis, dan koefisien determinasi dengan bantuan aplikasi SPSS versi 26. Hasil penelitian menunjukkan bahwa pelatihan berkelanjutan memiliki pengaruh signifikan terhadap profesionalisme guru abad ke-21 dengan nilai signifikansi sebesar  $0,000 < 0,05$ . Persamaan regresi yang diperoleh adalah:  $Y=32.417+0.633X$ . Hasil tersebut menunjukkan bahwa setiap peningkatan pelatihan berkelanjutan akan meningkatkan profesionalisme guru. Koefisien determinasi menunjukkan kontribusi pelatihan berkelanjutan terhadap profesionalisme guru sebesar:  $R^2=0.562$  atau 56,2%, sedangkan sisanya dipengaruhi faktor lain di luar penelitian. Pelatihan berkelanjutan terbukti mampu meningkatkan kompetensi pedagogik digital, kreativitas pembelajaran, kemampuan kolaborasi, komunikasi profesional, serta pengembangan diri guru dalam menghadapi tantangan pendidikan abad ke-21. Oleh karena itu, penelitian ini merekomendasikan penguatan program pelatihan guru yang berkelanjutan, relevan dengan kebutuhan pembelajaran, serta terintegrasi dengan perkembangan teknologi pendidikan guna meningkatkan mutu pendidikan secara berkesinambungan.

## Article History

Received : 08 23, 2025  
Revised : 09 10, 2025  
Accepted : 09 21, 2025

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## 1. INTRODUCTION

One of component important in development source Power quality human beings tall is education. Quality education has a big influence progress a country because education form ability intellectual, skills, character, and power competition society. World of education face various challenge new in the era of globalization and progress fast technology. For overcome challenge this , it is necessary There is change and innovation in the learning process. 21st century education is demanding change paradigm learning from teacher centered to teacher to learning participant centered educate. In paradigm new this, the teacher does not only on duty convey information; they also act as mover, motivator, educator, and creator method learning new. For fulfil need today's digital generation this, the teacher must capable create innovative, creative, interactive and based learning technology.

The world of education is also greatly influenced by progress rapidly in technology information and communication. Digital technology has change method student learn, communicate, and get information. Therefore that, so that the learning process still relevant and effective, teachers must capable adapt self with development According to Mishra and Koehler, 21st century teachers must own ability pedagogical content knowledge (TPACK) technology, which means they must can in a way effective integrate technology, pedagogy, and materials learning [1].

In addition, the system education was greatly influenced by the revolution Industry 4.0. Digital technology, intelligence artificial intelligence (AI), internet of things, and automation become part important from revolution Industry 4.0. Schwab explains that revolution industry 4.0 produces transformation big in pattern life humans, including education. Teachers must capable utilise digital technology as tool learning and preparing student For challenges of the future world of work [2].

After revolution Industry 4.0, the idea of Society 5.0 is increasingly emphasize how importance increase quality source Power man through education. Society 5.0 focuses on the development technology with objective increase quality life public through integration technology and life social [3]. Teachers are part important from system education that shapes

innovative, creative and capable generation adapt with progress technology.

As power professional, teachers have role important in determine quality education. One of the component important things that influence success of the learning process is teacher professionalism. According to Law of the Republic of Indonesia Number 14 of 2005 concerning Teachers and Lecturers, professional teachers is a teacher who has competence pedagogical, professional, social, and personality. Not only professional teachers understand material lessons, they are also able to manage learning with effective and continuous develop skills they in accordance current development.

However, in reality, it is still There is Lots related issues with teacher professionalism in Indonesia. Some educator Still difficulty integrate technology to in learning, less creative in use approach learning, and not yet reach development optimal professionalism. According to the Program for International Student Assessment (PISA), education in Indonesia is still low compared to with several other countries. Conditions This show that improvement teacher quality must be done in a way sustainable.

Training sustainable development process teacher competencies carried out in a way consistent through various activity education and training professional, is one of the method For increase teacher professionalism. Development professional sustainable development (CPD), also known as as development professional sustainable, is an educational process throughout purposeful life For increase quality professional teachers so that they can adapt self with development education, according to Day [4].

Because of the world of education Keep going experience changes, including curriculum, approach learning, and use technology, training Sustainability is very important. Teachers must Keep going renew knowledge and skills them so that they can give appropriate learning with need students in the 21st century. Guskey said that training effective professional must relevant with teacher needs, sustainable and impactful real in classroom learning [5].

Indonesian government has various development programs professional teachers, including Teacher Professional Education (PPG), Teacher Leader Program, digital learning

workshops, educational seminars, and other activities Subject Teachers' Conference (MGMP). The program's objectives are For increase teacher's ability in field education, professional, social, and technology education.

Regency, West Java, is one of the areas that are active implementing teacher training programs for increase quality education. Some school medium above in Bandung Regency in general regular stage community teacher learning, curriculum workshops, education seminars, and training technology learning. It is hoped that that activity the can help teachers become more professional in face challenge education 21st century.

However, research more deep Still required about how much effective training sustainable in increase teacher professionalism. Not all training programs give impact best to change practice teacher learning. Some programs are still nature theoretical and not yet fully in accordance with the needs of teachers in the field. In addition, training sustainable hampered by limited time, inadequate facilities adequate, and the teacher's wishes.

Previous studies show that training sustainable profitable teacher abilities. Darling-Hammond et al. stated that ability teacher pedagogy and quality teaching can improved through training sustainable professional development [6]. In addition, research conducted by Desimone and Garet shows that that relevant training with teacher needs can in a way significant increase quality learning [7].

In addition, the theory source Power Becker explains that humans that quality source Power man will increase with investment in education and training [8]. Teacher training is method important For increase results Study participant educate in education. Qualified teachers will more capable make innovative, creative and effective learning.

With thus, it is clear that training sustainable play role important in increase Teacher professionalism in the 21st century. Digital competence, creativity learning, ability collaboration and development self professional is all things to expect from the teachers who attended training in a way regular.

Therefore that, the goal from study This is For see How training sustainable impact on increasing teacher professionalism in schools medium above in Bandung Regency, West Java. It is hoped that study This will give contribution theoretical and

practical For building a more comprehensive teacher training program sustainable, relevant and effective For increase quality education in Indonesia.

## 2. RESEARCH METHOD

### 2.1. Types and Approaches Study

Study This use approach quantitative with use method survey descriptive correlational For test influence training sustainable to improvement teacher professionalism in the 21st century. Quantitative methods chosen Because objective study is For analyzing numerical data from respondents.

### 2.2. Place and Time of Research

In study this, a number of School Senior High School (SMA) in Bandung Regency, West Java, has observed. Choice location study based on reality that schools the has organize various training programs continuously for teachers. These programs including digital training, seminars and workshops, as well as activity development professional other.

### 2.3. Research Population and Sample

Population study This consists of of 185 teachers from various school public and private secondary schools in Bandung Regency. This data collected from school sample. For objective study this technique taking purposive sampling was used . This is technique taking samples based on criteria or consideration certain.

For become sample study this, they must a teacher at school medium above in Bandung Regency and has follow the training program sustainable for at least one years. They also have to Once attend workshops, seminars, digital training, or activity development professional other as a teacher. Lastly, them must willing become respondents research. Based on criteria said, research This take sample of 120 teachers from various public and private high schools in Bandung Regency.

Distribution sample study based on origin school can seen in the table following :

No	School name	Number of Teachers
1	State Senior High School 1, Bandung Regency	20
2	State Senior High School 2, Bandung Regency	18
3	State Senior High School 3, Bandung Regency	16
4	Private High School Bandung	22

	Regency	
5	Integrated Islamic High School Bandung Regency	24
6	Muhammadiyah High School, Bandung Regency	20
<b>Total</b>		<b>120</b>

Distribution sample the show that respondents study originate from various type school so that the data obtained more representative in describe condition Professionalism of high school teachers in Bandung Regency, West Java.

#### 2.4. Variables Study

In study This there are two variables, namely variables independent (free) and variable dependent (bound) variable independent in study This is training sustainable.

Variables training sustainable measured through a number of indicator as following :

No	Indicator	Description
1	Intensity Training	Frequency of teacher participation training professional
2	Relevance of Material	Compliance material training with need learning
3	Mastery Technology	Teacher's ability to understand technology education
4	Workshops and Seminars	Teacher participation in activity development professional
5	Development Competence	Improvement ability pedagogical and professional
6	Collaboration Professional	Involvement in community teacher learning

Variables dependent in study This is 21st century teacher professionalism. Variables teacher professionalism is measured through a number of indicator following :

No	Indicator	Description	Item Number
1	Competence Digital Pedagogy	Ability use technology in learning	1, 2, 3
2	Creativity Learning	Ability create learning innovative Training	4, 5, 6
3	Ability Collaboration	Ability Work Together with fellow Teachers	7, 8, 9
4	Ability Communication	Ability communicate effectively in learning	10, 11, 12
5	Professional Self Development	Efforts to improve competence in a way independent	13, 14, 15
6	Utilization Technology	Use of digital media and application in learning	16, 17, 18

Study This aim For know influence training sustainable to 21st century teacher professionalism. Relationship intervariable can depicted as following :

$$X \rightarrow Y$$

Information :

X= Continuous Training

Y= 21st Century Teacher Professionalism

Relationship model the show that training sustainable allegedly give influence positive to improvement teacher professionalism.

#### 2.5. Data Collection Techniques

##### 2.5.1. Questionnaire

Instrument study use Likert scale with five alternatives answer For measure level agreement respondents to every statement given.

Rating Scale Questionnaire

Score	Category Answer
5	Strongly agree
4	Agree
3	Doubtful
2	Don't agree
1	Strongly Disagree

##### 2.5.2. Observation

In study this , observation done in two ways : *first*, look how teachers do activity training; and *second*, see How technology used in learning. Seeing activity teacher collaboration carried out in schools. Observation done in a way non-participation, meaning researchers No involved direct in observed activities; they only view and record relevant data.

##### 2.5.3. Documentation

Data used in study This is as the following: the number of high school teachers in Bandung Regency; and data on teacher participation in training. Documentation techniques aim For increase validity of research data and provide description direct about How school apply training sustainable.

##### 2.5.4. Instrument Grid Study

No	Indicator	Description	Item Number
1	Competence Digital Pedagogy	Ability use technology in learning	1, 2, 3
2	Creativity Learning	Ability create learning innovative Training	4, 5, 6
3	Ability Collaboration	Ability Work Together with fellow Teachers	7, 8, 9
4	Ability Communication	Ability communicate effectively in learning	10, 11, 12
5	Professional Self Development	Efforts to improve competence in a way independent	13, 14, 15
6	Utilization Technology	Use of digital media and application in learning	16, 17, 18

Variable Grid Teacher Professionalism (Y)

No	Indicator	Item Number
1	Competence Digital Pedagogy	1, 2, 3
2	Creativity Learning	4, 5, 6
3	Ability Collaboration	7, 8, 9
4	Ability Communication	10, 11, 12

5	Professional Self Development	13, 14, 15
6	Utilization Technology	16, 17, 18

### 2.5.5. Instrument Testing Study

Before used in research, instruments moreover formerly tested validity and reliability.

Validity test done For know level accuracy instrument in measure variables research. Testing done use Pearson Product Moment correlation.

Instrument declared valid if :

$$r_{hitung} > r_{tabel}$$

Reliability test aim know level consistency instrument research .

Testing done using Cronbach Alpha.

Instrument stated reliable if :

$$\alpha > 0.70$$

### 2.6. Data Analysis Techniques

In study Here, data analysis is carried out with use help application *Statistical Package for Social Science* (SPSS) version 26. Data analysis techniques used consists of on analysis statistics descriptive and statistical inferential.

#### 2.6.1. Analysis Statistics Descriptive

Analysis Statistics Descriptive : Description study This includes:

1) Minimum value; 2) Maximum value; 3) Median (average); 4) Mode; 5) Standard deviation ; 7) Percentage .

Mean formula:

$$\bar{X} = \frac{\sum X}{N}$$

Information :

$\bar{X}$ = average

$\sum X$ = total score

$N$ = number of respondents

Analysis descriptive aim know level training sustainability and teacher professionalism based on category certain.

Category Evaluation

Percentage Interval	Category
81%–100%	Very high
61%–80%	Tall
41%–60%	Currently
21%–40%	Low
0%–20%	Very Low

#### 2.6.2. Prerequisite Test Analysis

Before do testing hypothesis use simple linear regression, especially formerly prerequisite tests were carried out analysis so that the data meets the requirements condition statistics.

Normality test aim know is the research data normally distributed or no. In study this, normality test done using the Kolmogorov-Smirnov Test with SPSS version 26 assistance.

Criteria testing :

If the value significance (Sig.) > 0.05 then the data is normally distributed.

If the value significance (Sig.) < 0.05 then the data is not normally distributed.

Normality test hypothesis:

$H_0$ : Data is normally distributed

$H_a$ : Data is not normally distributed

Linearity test done For know whether connection between variables training sustainable and teacher professionalism is linear or No.

Criteria testing:

If the Sig. Deviation from Linearity value > 0.05 then connection linear variables.

If the Sig. Deviation from Linearity value is < 0.05 then connection variables non- linear.

Linearity test important done Because analysis simple linear regression requires existence linear relationship between variables study.

#### 2.6.3. Analysis Simple Linear Regression

Analysis simple linear regression used For know influence training sustainable to 21st century teacher professionalism.

Equality simple linear regression is:

$$Y = a + bX$$

Information :

$Y$ = 21st century teacher professionalism

$X$ = Continuous training

$a$ = constant

$b$ = regression coefficient

Interpretation equality :

If the value  $b$  positive, then continuous training has a positive influence on teacher professionalism.

If the value  $b$  negative, then continuous training has a negative impact on teacher professionalism.

#### 2.6.4. Hypothesis Testing

Testing hypothesis done For know whether there is influence significant between training sustainable to 21st century teacher

professionalism.

Hypothesis study :

$H_0$ : There is no significant influence of continuous training on the professionalism of 21st century teachers.

$H_a$ : There is a significant influence of continuous training on the professionalism of 21st century teachers.

Testing done using the t-test.

Criteria taking decision :

If the Sig. value < 0.05 then  $H_a$  accepted and  $H_0$  rejected.

If the Sig. value > 0.05 then  $H_0$  accepted and  $H_a$  rejected.

Regression t-test formula :

$$t = \frac{b}{S_b}$$

Information :

$t$  = calculated t value

$b$  = regression coefficient

$S_b$  = standard error of the regression coefficient

### 2.6.5. Coefficient Determination ( $R^2$ )

Coefficient determination used For know size contribution variables training sustainable to 21st century teacher professionalism.

Formula coefficient determination :

$$KD = R^2 \times 100\%$$

Information :

$KD$  = coefficient of determination

$R^2$  = squared correlation coefficient

Interpretation :

The more big mark  $R^2$ , the greater the influence of continuous training on teacher professionalism.

The more small mark  $R^2$ , then the smaller the contribution of the independent variable to the dependent variable.

### 2.6.6. Data Analysis Steps

The process of data analysis in study This is as following: 1) Data collection from questionnaire respondents; 2) Data tabulation ; 4) Calculating score of each variable; 5) Test the validity and reliability of the instrument; 6) Test the normality and linearity; 7) Test the hypothesis research; 8) Taking conclusion based on results data analysis.

## 3. RESEARCH RESULTS

### 3.1. Overview of the Research Location

Study This implemented on several School Senior High School (SMA) in Bandung Regency, West Java. The school that became location study consists of on active public and private high schools implementing training programs sustainable for teachers, such as educational workshops, digital training, learning seminars, and activity Subject Teachers' Conference (MGMP).

Implementation study done during year academic year 2025/2026 with amount respondents as many as 120 teachers. Respondents consists of on male and female teachers from various field studies that have been follow the training program sustainable at least one year final.

### 3.2. Description of Research Data

Study This aim For know influence training sustainable to 21st century teacher professionalism in high schools in Bandung Regency, West Java.

Variables study consists of on:

Variables independent (X): Training Sustainable

Variables dependent (Y): 21st Century Teacher Professionalism

Data obtained through distribution questionnaire based Likert scale to 120 respondents.

### 3.3. Analysis Results Statistics Descriptive

#### 3.3.1. Continuous Training Variable (X)

Analysis results statistics descriptive variables training sustainable can seen in the table following :

Statistics	Mark
Amount Respondents	120
Minimum Value	58
Maximum Value	95
Mean	78.45
Median	79.00
Mode	80
Standard Deviation	7.62

Based on table the average value (mean) of 78.45 shows that level training sustainable teachers are in the category high. This is show that part large number of active teachers follow activity development professional such as workshops, seminars, training

technology education and community teacher learning .

Indicator with score highest contained in the aspect mastery technology education, whereas indicator with score lowest found in intensity involvement in community Study professional.

### 3.2.2. Variables 21st Century Teacher Professionalism (Y)

Analysis results statistics descriptive variables teacher professionalism can seen in the table following:

Statistics	Mark
Amount Respondents	120
Minimum Value	60
Maximum Value	98
Mean	82.13
Median	83.00
Mode	84
Standard Deviation	6.95

The average value of 82.13 shows that 21st century teacher professionalism is in the category high. Teachers are assessed has capable utilise technology in learning, applying method learning innovative, as well as do collaboration professional with Good. Aspect professionalism with score highest found in the use of digital media in learning , whereas aspect with score lowest lies in the ability do study action class.

### 3.4. Instrument Test Results Study

#### 3.4.1. Validity Test

Validity test done use Pearson Product Moment correlation with help SPSS application version 26.

Test results show that all statement items own mark:

$$r_{hitung} > r_{tabel}$$

The value  $r_{tabel}$  for the number of respondents 120 at a significance level of 5% is:

$$r_{tabel} = 0.179$$

Range mark validity of variable items training sustainable is at between 0.421–0.781, whereas variables teacher professionalism is between 0.438–0.804.

With Thus, all instrument items study declared valid and worthy used.

#### 3.4.2. Reliability Test

Reliability test results use *Cronbach Alpha* can seen in the table following:

Variables	Cronbach Alpha	Information
Training Sustainable	0.891	Reliable
Teacher Professionalism	0.903	Reliable

Because of the value *Cronbach Alpha* more big from 0.70, then

instrument study stated reliable and consistent used as tool data collection.

### 3.5. Prerequisite Test Results Analysis

#### 3.5.1. Normality Test

Normality test done use *Kolmogorov-Smirnov Test*.

Test results can seen in the table following :

Variables	Sig.	Information
Training Sustainable	0.087	Normal
Teacher Professionalism	0.094	Normal

Criteria testing :

If Sig. > 0.05 then the data is normally distributed.

Because all mark significance more big from 0.05, then the research data stated normally distributed.

#### 3.5.2. Linearity Test

Linearity test results connection between training sustainability and teacher professionalism can seen in the table following :

Variables	Sig. Deviation from Linearity	Information
X against Y	0.112	Linear

Because of the value significance more big from 0.05, then connection second variables stated to be linear and satisfactory condition analysis simple linear regression.

### 3.6. Analysis Results Simple Linear Regression

Analysis simple linear regression done For know influence training sustainable to 21st century teacher professionalism.

Analysis results obtained equality regression as following :

$$Y = 32.417 + 0.633X$$

Information :

Y= Teacher professionalism

X= Continuous training

32.417 = constant

0.633 = coefficient regression

Equality the show that every improvement One unit training sustainable will increase teacher professionalism of 0.633.

Coefficient regression worth positive , which means training sustainable own influence positive to 21st century teacher professionalism.

### 3.7. Hypothesis Test Results

Testing hypothesis done using the t-test for know significance influence training sustainable to teacher professionalism.

The results of the t-test can be seen in the table following :

Variables	t count	Sig.	Information
Training Sustainable	8,742	0,000	Significant

Criteria testing :

If Sig. < 0.05 then hypothesis accepted .

Because of the value significance by more than 0,000 small from 0.05, then hypothesis study accepted. With Thus, there are influence significant training sustainable to 21st century teacher professionalism in high schools in Bandung Regency, West Java.

### 3.8. Results of the Coefficient of Determination (R<sup>2</sup>)

Coefficient determination used For know size contribution training sustainable to teacher professionalism.

Analysis results show mark :

$$R^2 = 0.562$$

The value show that training sustainable give contribution by 56.2% against improvement 21st century teacher professionalism, while the rest 43.8 % is influenced by other factors outside research, such as motivation work, experience teaching, leadership head school and environment Work.

### 3.9. Discussion of Research Results

Study show that improvement teacher professionalism in the 21st century is influenced in a way significantly by training sustainable. Active teachers participate in training own more capacity Good in use technology learning, creativity teaching, working The same professional and development self. The theory of *Continuous Professional Development* (CPD) says that teachers must Keep going develop professionalism For fulfil need modern education. Discovery study This in line with theory This.

Training Keep going continuously help teachers become more proficient in digital learning, especially with tool such as Google Classroom, Zoom Meeting, Canva Education, and Systems Management Learning Management System (LMS). Workshops and seminars also help teachers collaborate. with community learning and professionalism. Teachers make innovation learning based technology and more active share experience learning.

Study This also supports Darling-Hammond et al., who stated that training sustainable professional can increase quality teaching and effectiveness classroom learning [6].

However Thus, research This find a number of

obstacles that hinder training. Some of them is limitations teacher's time, shortage facility supporters, and lack of amount schools that allow participant For get training.

In a way overall, research This show that training sustainability is very important For increase teacher professionalism in the 21st century, especially in face challenge digital education and development technology education is increasingly rapidly.

### 4. Conclusion

Based on results study about influence training sustainable to improvement teacher professionalism in the 21st century, can concluded that training sustainable own significant influence to improvement teacher professionalism. Analysis results simple linear regression show that mark significance less than 0.000 of 0.05, which indicates hypothesis study accepted.

Proven that training sustainable can increase various aspect teacher professionalism, including ability digital pedagogy, skills collaboration, creativity learning, ability communication professional and development teacher self for face challenge education 21st century. Participating teachers in the training program own more capacity Good For use technology education, making method creative learning, and making environment interactive and student - centered learning.

In addition, the results study show that training sustainable give contribution by 56.2% against improvement teacher professionalism. Other factors, such as motivation work, experience teaching, leadership school and environment education, influence the remaining part. The result show that training sustainable is component important in support improvement teacher quality in the technological era.

In addition, research This show that consistent and appropriate training with teacher needs can help teachers adapt self with change technology and change in system education. Training No only increase knowledge theoretical teachers, but also improve ability they For manage learning innovative, collaborative, and community - based contemporary technology.

Therefore that , can concluded that training sustainable is method important For increase teacher competencies in the 21st century. Therefore that, government, schools, and institutions education must support ongoing training programs that meet teacher needs and integrated with progress technology

education For maintain quality learning and standards education national.

### Reference

- [1] Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017–1054.
- [2] Schwab, K. (2016). *The fourth industrial revolution*. Geneva: World Economic Forum.
- [3] Fukuyama, M. (2018). Society 5.0: Aiming for a new human-centered society. *Japan SPOTLIGHT*, 27(5), 47–50.
- [4] Day, C. (1999). *Developing teachers: The challenges of lifelong learning*. London: Falmer Press.
- [5] Guskey, T. R. (2002). Professional development and teacher change. *Teachers and Teaching: Theory and Practice*, 8(3), 381–391.
- [6] Darling-Hammond, L., Hyster, M.E., & Gardner, M. (2017). *Effective teacher professional development*. Palo Alto, CA: Learning Policy Institute.
- [7] Desimone, LM, & Garet, MS (2015). Best practices in teachers' professional development in the United States. *Psychology, Society & Education*, 7(3), 252–263.
- [8] Becker, G.S. (1993). *Human capital: A theoretical and empirical analysis with special reference to education* (3rd ed.). Chicago: University of Chicago Press.

