| **RESEARCH ARTICLE**

Asta Brata Digital Book Development for Improving Students' Leadership Attitude

Siti Musa'adah[1] ✉ Akhmad Arif Musadad[2] and Sudiyanto[3]

[1]*Student, History Education Faculty of Teacher Training and Education Sebelas Maret University, Jl. Ir. Sutami No.36 A Kentingan, Surakarta, Indonesia*

[2]*Lecturer, History Education Faculty of Teacher Training and Education Sebelas Maret University, Jl. Ir. Sutami No.36 A Kentingan, Surakarta, Indonesia*

[3]*Lecturer, Accounting Education Faculty of Teacher Training and Education Sebelas Maret University, Jl. Ir. Sutami No.36 A Kentingan, Surakarta, Indonesia*

Corresponding Author: Siti Musa'adah, **E-mail**: sitimusaadah09@student.uns.ac.id

| **ABSTRACT**

This research aim is to present data from the research and development of digital books to improve leadership attitudes. The study uses research and development (RnD) methods with research procedures: definition, design, development, and dissemination. Methods of data collection used observation, interviews, and questionnaires. Data validation uses SPSS 25 analysis techniques using validity and reliability tests. The results show an increase and difference in leadership attitudes in the control class and the experimental class with a significance of $0.00 < 0.05$.

1. Introduction

In Indonesia, the industrial era 4.0 has not ended but has changed into the industrial era 5.0. The characteristics of the industrial age 4.0 emphasize character, moral and exemplary education for students, offset by technological advances that utilize online learning, and students are expected to achieve learning goals (Risdianto, 2019). In contrast to the industrial era 4.0, the industrial era 5.0 places more emphasis on the use of technology not only for business interests but the use of technology to improve the welfare of the wider community.

In the 21st century, several skills must be owned by each individual, such as the ability to lead, mastery of digital literacy, here good communication, emotional intelligence, an entrepreneurial spirit, have ability to solve problems, and good teamwork (Alimuddin, 2019). As one of the subjects at the high school level, history lessons have contributed to preparing students for the 21st century. In line with the competencies that individuals must have in the 21st century, history lessons have learning objectives, namely 1) developing deepening of local and national material, 2) developing critical and creative thinking skills, 3) creating social awareness, 4) developing curiosity, 5) developing heroism and leadership attitudes, 6) developing the ability to seek, process, and package information, and 7) communicate (Hasan, 2019).

The definition of attitude is a reaction or response that tends to be closed to stimuli or objects. While leadership is the activity of influencing people to achieve common goals (George, 1984), it can be concluded that leadership attitude is the ability and readiness individuals possess to influence, encourage, invite, guide, move, and, if necessary, force others to follow them. Our direction will then help achieve the goal in question. To apply leadership attitudes in the classroom, a learning model is needed to

package it, so the learning model chosen is a problem-solving learning model, namely a uniform process for identifying potential problems, representing problems, exploring possible strategies, and evaluating learning (Bransford, J., Sherwood, R., Vye, N., & Rieser, 1986). The problem-solving learning model has the following characteristics 1) students solve problems presented by the teacher individually or in groups, 2) the tasks to be completed by students are explained in detail by the teacher, and 3) students discuss to complete the task (Yamin, 2010). The steps for implementing the problem-solving learning model are: 1) realizing the difficulty, 2) identifying problems, 3) collecting, classifying data, and formulating hypotheses, 4) accepting and rejecting the hypotheses resulting from the discussion, and 5) formulating and evaluating (Dewey, 1909). This research will discuss the development of problem-solving-based digital books to improve student leadership attitudes.

Departing from the background of the problems above and the results of research observations in the field, it is known that there are several problems, including

1. The importance of leadership for students,
2. The need for the development of digital books,
3. The need for the concept of leadership in the teachings of *Asta Brata*

Based on the background described above, this study will discuss the development of *Asta Brata* digital books to improve student leadership attitudes. This material relates to core competence 10.4, explaining the relationship between local genius and belief systems in the cultural heritage of the Hindu and Buddhist kingdoms.

2. Literature Review
a. Leadership Attitude
1. Definition
The definition of *attitude* is a reaction or response that tends to be closed to stimuli or objects. Attitude is related to a form of self-confidence towards objects or situations that tends to be steady, which is supported by certain feelings and can respond in the ways it chooses. Human attitudes about all things that are learned or cognitive, all things that are influenced by feelings or emotions or affective, and forms of action or psychomotor (Bernadine R. Wirjana, 2006). While leadership comes from the word lead which means leader as a subject or person who leads and those who lead as objects or targets. The word lead means directing, showing, fostering or managing, guiding, and showing. In terms of terminology, it is something related to stimulus, mobilization, coordination, direction, and motives that involve many people (Zakub, 1939:125). Some theoretical studies have several explanations relating to the word leadership, including leadership as the activity of influencing people to achieve common goals (George, 1984). Leadership is also defined as the process of influencing groups so that they want to work together to achieve a goal (Koontz, Harold, Cyril O'Donnell, 1984). Leadership has the meaning of moving early, walking forward, taking the most important steps, acting quickly, and guiding and guiding members toward the same goal (Efendi, 2014). Leadership is a process that is carried out by someone to influence its members to realize organizational change (Yamin, 2010:77). It can be concluded that the attitude of leadership is the ability and readiness possessed by individuals to influence, encourage, invite, guide, move, and if necessary force others to follow our directions which will then help achieve the intended goal.

2. Indicators of Leadership Attitudes
Indicators of leadership attitudes, according to Davis (Handoko, 2003:290-291), are 1) having intelligence which is shown in leaders who have higher intelligence than their followers but not too different, 2) social maturity and broad social relations (*social maturity and breadth*) which means that leaders tend to have stable emotions and are mature or mature, and have broad concerns. 3) Leaders with high achievement motivation and drive can work harder for intrinsic value. Moreover, 4) human relations make a leader able to be respected by subordinates because of achievements. The Leadership Instrument practically uses two general measures, namely the LBDQ (Stogdill, 1963) for research used since the 1960s and *the Grid* for the training and development of managers and supervisors in the leadership process (Janel Bloch, Peter C. Brewer, 2012). The following team leadership instruments are adopted from Northouse (2019: 89): 1). Intelligence, 2) confidence, 3) perseverance, 4) integrity, 5) socializing, 6) self-awareness, 7) ingenuity, 8) love, and 9) heroism.

b. Digital Book
1.   Definition
A book is a bound sheet of paper that contains writing or blanks (Badudu, 1994:152), while digital is a system that changes technology from analog (manually) to digital, meaning that the system is run by a computer, for example, graphics, *Microsoft Word*, and *PowerPoint* (Prastowo, 2015) then the definition of a digital book is a reading that contains information, text, images, audio, and even video that can be viewed on computers, laptops, tablets, and *smartphones*. As for the function of digital books as one of the teacher's options and innovations in providing teaching materials to students, in contrast to printed books, digital books can

contain a variety of information, images, and videos that can be presented in one space and digital books can be disseminated more quickly than books. Print.

2. Strengths and Weaknesses

There are several advantages of digital books, namely, 1) digital books are more practical and easy to carry. If you want to read digital books anywhere, turn on an electronic device such as a laptop, smartphone, tablet, or digital book reader. 2) digital books are environmentally friendly without realizing that printed books can use up raw materials in the form of tree fiber, so the presence of digital books can reduce the use of tree fiber and create a friendly environment. *3)* digital books are durable or even eternal or everlasting. As long as the condition of the laptop or smartphone is still active, digital books can still be used, and in contrast to printed books, they will be easily damaged if maintenance is not done carefully. *4)* digital books are more practical and simple. Digital books are considered practical and straightforward because they are easy to carry, unlike printed books which take up much space. 5) digital books are cheaper because they do not require a printing process, so they are more economical. If you want to share digital books, share the link. 6) digital books have a small physical size because they are in digital form, which can be stored on laptops and smartphones. 7) digital books are easy to track or search for by typing the title on the search button on laptops and smartphones. Despite the advantages described earlier, digital books also have drawbacks, including 1) requiring supporting devices such as laptops, smartphones, tablets, and so on, 2) digital books are less comfortable for the eyes due to exposure to light from electronic devices, 3) can disappear at any time if the device is exposed to a virus (Ruddamayanti, 2019).

3. Methodology

The research method used is the Research and Development or RnD method model with the following steps: 1) *define*, 2) *design*, 3) *development*, 4) *disseminate*.

Chart 3.1 Triagarajan 4D R&D Model (1974)
(Source: (Thiagarajan, S., Semmel, D. S., 1974)

4. Results and Discussion

a. The Conditions of Leadership Attitudes at SMAN 1 Prambon

The conditions of history learning applied to SMAN 1 Prambon schools can be reviewed through the first step in the research, namely the define stage. At this stage, the researcher conducts a needs analysis to analyze the conditions of learning history, analyze the needs of teaching materials, and analyze leadership attitudes. Then the preliminary data analysis technique was processed in a qualitative descriptive manner referring to the Miles and Huberman (1992) model in Sugiyono (2010:337-345) by carrying out three steps, namely data reduction, data presentation, and drawing conclusions. The results of the analysis of students' initial needs revealed that 30 students were taken as a sample of the study, obtained data that 81% of students did not understand leadership attitudes, 56% of students answered that there was no digital book development, and 73% of students did not understand the material concept of *Asta Brata* leadership attitudes. So from this problem, the researcher will develop material on the concept of Asta Brata leadership based on problem-solving to improve student leadership attitudes.

b. The Need for Teaching Material Development at SMAN Prambon 1

Based on observations and interviews that have been conducted by researchers at schools with history teachers, the results of the discussion are as follows: first, the teaching materials used by teachers so far, namely learning management systems (LMS) and e-learning, were developed and managed by each school, PowerPoint, student worksheets (LKPD), learning videos from Youtube, and historic film screenings. All the teaching materials have been mentioned. Second, there is still a lack of leadership material applied in schools; the material is only conveyed implicitly in all subjects and basic leadership training materials (LKD) for selected students, even though the delivery of leadership attitude material is important considering it is one of the objectives of learning history, namely to improve attitudes. With heroism and leadership attitudes, the researcher took the sub-material in KD 10.4 to be able to explain the relationship between local genius and belief systems in the civilizational heritage of the Hindu and Buddhist kingdoms. From these basic competencies, the sub-material was selected, namely the concept of leadership in the teachings of *Asta Brata*. The three learning models that have been applied so far, based on observations and interviews, the models used, especially in the last two years, regarding the implementation of the independent learning curriculum, which frees the teacher to choose materials and learning models, the model chosen is contextual teaching and learning (CTL) by inviting students in groups and looking for concrete examples of the material discussed. Based on observations, interviews, and giving questionnaires to 48 class X students, it was found that 56% of students needed material related to the concept of leadership along with examples of its characteristics.

c. Results of Digital Book Development

Based on the results of the analysis of the needs of teaching materials previously presented, it is known that students need teaching materials in the form of digital books. Making digital books according to research procedures and 4D model development. Define stage, namely analyzing needs. Design stage, namely designing digital books. At this stage, the researcher has adapted the material to the independent learning curriculum, designed Asta Brata material, and designed a learning implementation plan (RPP). Digital book prototypes include covers, instructions for using digital books, learning outcomes, learning paths and objectives, profiles of Pancasila students, presentation of problems, materials, evaluations, bibliography, and developer profiles.

In the three stages of development, at this stage, the researcher has validated material, media, and language experts. The results of the validation are as follows, 1) material validation was carried out by history lecturer Dr Hyronymus Purwanta, MA. The assessment includes opening, content and closing aspects. The validation results obtained a percentage of 97% in the very feasible category. Deny Tri Ardianto, S.Sn., Diploma with the scope of assessment covering aspects of drawing, writing and colour. The percentage results were 93% in the very decent category, and 3) language validation was carried out by Lecturers of Indonesian or Oral Literature at the PGRI Madiun University Yunita Furinawati, S.Hum, M.A, the percentage results were 85% in the very good category.

After validation, the next step is to revise all the parts that have been given criticism and suggestions. Then the next stage is to do tests on small groups and large groups. The results of the small group trials were carried out by ten students by filling out a media assessment questionnaire with an average result of 3.2 with a good category, and large group trials conducted by 30 students with an average result of 3.5 very good categories. So it can be concluded that digital book teaching materials are suitable for use by students in the control class and the experimental class. The following is a digital book display that has been developed by researchers:


Cover
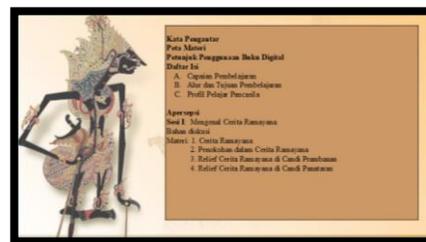
Tables of Contents
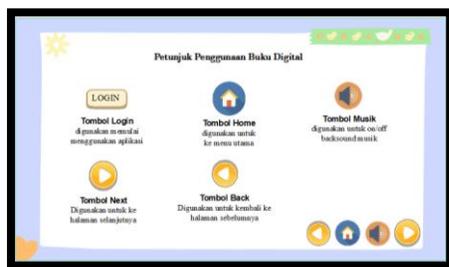
Instructions for Product Use

Materials
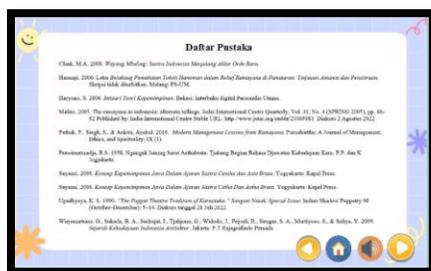
Bibliography

Developer profile

The next step is to prepare a leadership attitude questionnaire for the control class and the experimental class. The leadership attitude questionnaire items were obtained from the leadership attitude indicators adopted from Northouse as many as nine indicators, namely: 1) intelligence, 2) confidence, 3) perseverance, 4) integrity, 5) socializing, 6) self-awareness, 7) ingenuity, 8) love, and 9) heroism. Leadership attitude questionnaire analysis using SPSS 25 tool by testing the validity and reliability with the formula and results as follows:

$$r_{xy} = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{\{N \sum_X 2 - (\sum_X 2)\}(N \sum_Y 2 - (\sum_Y 2 - (\sum_Y 2)\}}}$$

(Arikunto, 2013:213)

Information:
rxy = Coefficient of item validation
X = Score of the item/item
N = Total number of respondents
Y = Total score of the item.

$$\alpha = \frac{k}{k-1}[1 - \frac{S^2_j}{S^2_x}]$$

(Asep Jihad dan Abdul Haris, 2012:179)

α = Alpha reliability coefficient
k = many splits
S^2_j = cleavage score variance
S^2_x = variance of total score

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.786	.786	21

In a total of 24 statement items, there are three invalid statements, so these statements must be discarded. To see in detail the valid and invalid statements, you can see the following table:

No	Statement	Validity	Information
1.	I am an intelligent and knowledgeable person	0.542*	Valid
2.	I believe in my own ability to complete assignments from the teacher	0.523*	Valid
3.	I show tolerance, kindness and sympathy to friends	0.427*	Valid
4.	I like things that are structured, systematic, and detailed in terms of school assignments	0.529*	Valid
5.	I like to understand in detail how something works	0.439*	Valid
6.	I am personally consistent and responsible	0.491*	Valid
7.	I easily talk and get along with other people	0.18*	Valid
8.	I am tolerant, kind and sympathetic to friends	0.21	Invalid
9.	I know my regarding strengths and weaknesses in the field of physical, emotional, intellectual, and social relations	0.01	Invalid
10.	I have a personal vision that provides clarity for action in my daily life	0.395*	Valid
11.	Dare to face the challenges of a world that are constantly changing with technological literacy	0.492*	Valid

12.	Provide support to people around both joy and sorrow	0.391*	Valid
13.	Have a sense of caring for people around, both joy and sorrow	0.306*	Valid
14.	Be a source of inspiration for around	0.481*	Valid
15.	Continuously trying to realize one's goals by studying seriously, diligently and tenaciously	0.423*	Valid
16.	I rarely help friends when I need help	0.324*	Valid
17.	I'm lazy and indifferent to helping friends who need help	0.286*	Valid
18.	I find it challenging to make a decision	0.461*	Valid
19.	I rarely express opinions, ideas, and innovations when discussing completing group assignments	0.185	Invalid
20.	When conducting discussions in class, I rarely listen and pay attention by choosing to enjoy myself chatting with other friends	0.391*	Valid
21.	When the test scores don't meet expectations, I give up and have no enthusiasm to study hard again	0.565*	Valid
22.	Helping friends by providing innovative suggestions in discussions	0.252*	Valid
23.	Express opinions and ideas in discussions confidently and are not afraid of being wrong	0.469*	Valid
24.	I am a student who prioritizes the interests of the school over personal interests.	0.473*	Valid

The table above is the leadership attitude questionnaire data given to a number of 48 students to respond to their leadership attitude. The data shows that numbers 8,9, and 19 are invalid because the value < r table is < 0.21, so they must be discarded, and as many as 21 valid statements will be used for the control class and the experimental class.

d. The effectiveness of digital books
The effectiveness of digital books based on Asta Brata material problem solving can be known through tests of normality, Homogeneity, and hypothesis testing. Here are the results of the test:

1). Test of Normality

Tests of Normality

	KELAS	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic
NORMALITY RESULT	PRE-TEST CONTROL CLASS	.130	60	.013	.939
	PRE-TEST EXPERIMENT CLASS	.128	60	.016	.919

The data above comes from the control class and the experimental class, each of which has 60 students from 2 classes. The pre-test data for the control class shows a significance of 0.13, meaning 0.13 > 0.05, so the data is normal, and the experimental class shows a significance of 0.16, meaning 0.16 > 0.05, then the information is also standard.

2). Homogeneity

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
STATEMENT ATTITUDE	LEADERSHIP Based on Mean	5.273	1	118	.023
	Based on Median	5.153	1	118	.025
	Based on Median and with adjusted df	5.153	1	97.658	.025
	Based on trimmed mean	5.299	1	118	.023

In the homogeneity test to see the level of variance in the study, the control and experimental classes showed a significance of 0.23, meaning 0.23 > 0.05, so it can be said to be homogeneous or the same.

3).

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
EQUALITY TEST	Equal variances assumed	5.273	.023	-1.553	118	.123	-1.683	1.084	-3.830	.463
	Equal variances not assumed			-1.553	104.634	.123	-1.683	1.084	-3.833	.466

Based on the independent sample test table using the SPSS 25 program, it is known that F is 5273 with a significance level of 0.23 greater than 0.05 (0.23 > 0.05) while the results of significance (1-tailed) are 0.123 > 0.05, it can be said that the average leadership attitude between the control class and the experimental class is the same, in conclusion, the prerequisite test has been fulfilled, the questionnaire can be used for the learning implementation stage.

4). Test the effectiveness of digital books with an independent sample test
The effectiveness of Asta Brata digital books based on problem-solving can be seen by conducting posttests in the control class and the experimental class. The following are the results of the independent sample test:

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
EFFECTIVENESS LEADERSHIP ATTITUDES	Equal variances assumed	5.621	.019	-10.573	118	.000	-15.383	1.455	-18.265	-12.502
	Equal variances not assumed			-10.573	111.239	.000	-15.383	1.455	-18.266	-12.500

Based on the analysis above, it is known that the control class and the experimental class get a significance value (1-tailed) of 0.00 less than 0.05 (0.00 < 0.05), then Ho is rejected, and H1 is accepted. So it can be concluded that the Asta Brata digital book based on problem-solving is effective in increasing the leadership attitude of students in the control class and the experimental class.

5. Conclusion
Based on the discussion that has been presented above, the main objective of this research is the development of digital books on *Asta Brata* material. The result of digital books needs to be done because preliminary studies show there is still a lack of teaching materials and learning media in Prambon 1 Public High School. This is evidenced by the distribution of questionnaires to class X students, with the result that 56% of students needed innovative teaching materials and media other than printed books, the steps taken by the researchers were to develop digital books as innovative teaching materials at Prambon 1 Public High School. The next step is developing digital books based on the 4D research and development model, which includes defining, designing, developing, and disseminating. At the development stage, researchers have developed digital books with the help of the *Smart App Creator* application presenting Asta Brata material, namely Javanese leadership concept material from the twentieth century -9. This material is still relevant to use today. After developing digital books, the next step is to conduct an assessment of material experts, media experts, and linguists, each of whom gets a score of 97%, 93%, and 85% in the "very appropriate" category, so digital books are suitable for use by students. The effectiveness of digital books can be seen from the acquisition of values for the control class and the experimental class, with the results of the independent sample test 0.00 < 0.05, which means they are effective in increasing leadership attitudes.

The low leadership attitude of class X students at SMAN 1 Prambon is the main topic of this study because of the importance of applying leadership attitudes for students to prepare good generations for the future. Stay away from violations of collusion, corruption, and nepotism. So it is necessary to develop materials based on leadership attitudes. The limitation of this study lies in the subjects taken as research in only one school, and this can be used as a suggestion for future researchers to conduct research and develop digital books with material on leadership attitudes with a broader subject.

Conflicts of Interest: The authors declare no conflict of interest.
Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers.

References
[1] Alimuddin, Z. (2019). Era Masyarakat 5.0 Guru Harus Lebih Inovatif Dalam Mengajar. *Jurnal Akademia*. https://www.timesindonesia.co.id/%0ARead/214466/20190518/165259/%0AZulkifar-Alimuddin-Era-Masyarakat50-Guru-Harus-Lebih-Inovatif-Dalam%02Mengajar
[2] Arikunto, S. (2013). *Prosedur Penelitian: Suatu Pendekatan Praktik*. Bandung: Rineka Cipta.
[3] Asep Jihad dan Abdul Haris. (2012). *Evaluasi Pembelajaran*. Bandung: Multi Pressindo.
[4] Badudu. (1994). *Kamus Besar Bahasa Indonesia*. Jakarta: Depdiknas.
[5] Bernadine R. Wirjana, M. S. . dan S. S. (2006). *Kepemimpinan, Dasar- Dasar dan Pengembangannya*. Yogyakarta: CV. Andi offset.
[6] Bransford, J., Sherwood, R., Vye, N., & Rieser, J. (1986). Teaching thinking and problem-solving: Research foundations. *American Psychologist, 41(10), 1078–1089. Https://Doi.Org/10.1037/0003-066X.41.10.1078*.
[7] Dewey, J. (1909). *How We Think*. New York Chicago: D.C. Heath & Co. Publisher.
[8] Efendi, U. (2014). *Asas Manajemen*. Jakarta: Rajawali Press.
[9] George, R. T. (1984). *Dasar-Dasar Management. Penerjemah*. Jakarta: Bumi Aksara.
[10] Handoko, T. H. dan R. (2003). *Manajemen Sumber Daya Manusia dan Perusahaan* (Edisi Kedua). Yogyakarta: BPFE.
[11] Janel B, Peter C. B, and D. E. S. (2012). Responding to the Leadership Needs of the Accounting Profession: A Module for Developing a Leadership Mindset in Accounting Students. *American Accounting Association*, *27*(ISSUES IN ACCOUNTING EDUCATION).
[12] Koontz, H, Cyril O'D and Zack H. W. (1984). *Manajemen* (Jilid kedua). Jakarta: Erlangga.
[13] Prastowo, A. (2015). *Panduan kreatif membuat bahan ajar inovatif.* Yogyakarta: Diva Press.
[14] Risdianto, E. (2019). Analisis Pendidikan Indonesia D i Era Revolusi Industri 4.0. *Jurnal Akademia*.
[15] Ruddamayanti. (2019). Pemanfaatan Buku Digital dalam Meningkatkan Minat Baca. *Prosiding Seminar Nasional Pendidikan Program Pascasarjana Universitas PGRI Palembang*.
[16] Said H H. (2019). Pendidikan Sejarah untuk Kehidupan Abad Ke 21. *HISTORIA: Jurnal Pendidik Dan Peneliti Sejarah,*
[17] Stogdill, R. M. (1963). *Manual For The Leader Behavior Description Questionnaire Form Xii.*
[18] Sugiyono. (2010). *Metode Penelitian Kuantitatif Kualitatif dan R&D*. Bandung: Alfabeta
[19] Thiagarajan, S., Semmel, D. S., S. M. I. (1974). *Instructional Development for Training Teachers of Exceptional Children*. Indiana University.
[20] Yamin, M. dan Maisah. (2010). *Standarisasi Kinerja Guru*. Bandung: Persada Press.
[21] Zakub, H. (1939). *Menuju Keberhasilan Manajemen dan Kepemimpinan*. Bandung: CV Diponegoro.