THE EFFECTIVENESS OF BLENDED LEARNING METHOD IN IMPROVING STUDENTS' ENGLISH LEARNING OUTCOMES (AN EXPERIMENTAL STUDY AT EIGHT GRADERS OF MTS FATAHILLAH NGALIYAN IN ACADEMIC YEAR OF 2021/2022)

THESIS

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2022

A THESIS PROJECT STATEMENT

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It is undeniably my work. This thesis' content is entirely my responsibility. Other writers' thoughts or conclusions are quoted or cited in this thesis in compliance with ethical norms.

Semarang, 15June 2022

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Dear
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Assalamu'alaikum wr. wb.

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State that this thesis is ready to be submitted to Education and Teacher Training Faculty of UIN Walisongo Semarang to be examined at Munaqosyah Session

Wassalamu'alaikum wr. wb.

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RATIFICATION

Thesis with the following identity:

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MOTTO

إِنَّ اللَّهَ لَا يُغَيِّرُ مَا بِقَوْمٍ حَتَّىٰ يُغَيِّرُوا مَا بِأَنْفُسِهِمْ

*"*Verily God does not change the state of a people untill they change themselves*"*(QS. Ar-Ra'd : 11)

DEDICATION

This writing project is fully dedicated to:

1. My beloved my wife Noor Aisha, S. Sos , my father and mother, Bapak Rohil Zulam (alm) and Misbahul Muniroh, thank you for always supported me. You are the reason why I am strong because you have taught me everything. Thank you for endless prayers, love, effort and contribution in making my education successful and run well. Thank you for believing me until finishing the project. I love you so much.
2. My beloved daughter, Nadhira Noor Hafidza who always support me,

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5. All my friends of PBI B 2015, you all are the best thing I have ever had.
6. Finally, the reasercher realize that this thesis is far from being perfect. Therefore, the writer will happily accept constructive criticism in order to make it better. The writer hopes this thesis would be beneficial for everyone. Aamiin .

Semarang, 15 June 2022

The Writer,

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TABLE OF CONTENT

ABSTRACT

The blended learning method is a learning method that is believed to be able to improve students' English learning outcomes. The objective of this study is to exemine the effectiveness of implementation of blended learning method in improving English learning outcomes of eighth grade students of MTs Fatahillah Ngaliyan in the academic year of 2021/2022. This is experimental research. The cluster random sampling technique was used to choose which class to be the sample. Sample from eighth grade students was taken as an experimental class and a control class at each of which consisted of 31 students. The result showed that the experimental class students' learning outcomes (97.74) are better than are the control class students' learning outcomes (73). The results conveyed that the implementation of blended learning method is effective in improving English learning outcomes.

Key words: Blended learning, English learning outcomes, Eight grade

CHAPTER I
INTRODUCTION

Background of the Research

Humans' lifestyles have been affected by major changes in the industrial sector.[1] Major changes in the industrial sector, also known as the digital era, are also known as the industrial revolution 4.0.[2] Paradigm shifts impact all elements of human life.[3] The way of thinking of the people who used to be traditional is directed towards a modern way of thinking in this 4.0 industrial revolution. The fact is that the industrial revolution led to major changes in all fields, especially system

[1] H. Lasi, et al., "Industry 4.0," *Business & Information Systems Engineering,* Vol 6, No. 1, (2014), pp. 239–242. Doi: https://doi.org/10.1007/s12599-014-0334-4

[2] R. Maskuriy, et al., "Industry 4.0 for the Construction Industry — How Ready Is the Industry?*," Applied Sciences,* Vol. 9, No. 1, (2019). Doi: http//doi.org/10.3390/app9142819

[3] Y. Liao, et al., "The Impact of the Fourth Industrial Revolution : A Cross-Country / Region Comparison," *Production,* Vol. 28, No. 1, (2018). Doi: https://doi.org/10.1590/0103-6513.20180061; C. Mcphee, D. Hudson, & H. Allahar, "Technology Innovation Management Review," *Editorial : Insights*, Vol. 7, No. 11, (2017); T. Wagner, C. Herrmann, & S. Thiede, "Industry 4.0 Impacts on Lean Production Systems," *Procedia CIRP*, Vol. 63, (2017), pp. 125–131. Doi: https://doi.org/10.1016/j.procir.2017.02.041; D. Lase, "Education and Industrial Revolution 4.0," *Jurnal Handayani PGSD FIP UNIMED*, Vol. 10, No. 1, (2019), pp. 48–62. Doi: https://doi.org/10.24114/jh.v10i1.14138.

changes. The industrial revolution 4.0 directs people to update their previously traditional perspective towards a modern perspective by getting used to technology being present in their lives, including the education system.

Education is a lifelong need.[4] The industrial revolution affected major changes in education which was marked by changes in the impact, goals and ways of developing education. For example, adaptation to the industrial revolution 4.0 model of education must be applied to the current education system. The education system, therefore, must evolve from a conventional education system to a modern education system,[5] even the teaching process in the classroom. Meanwhile, the burden that must be borne by the influence of the industrial revolution 4.0 is that education in improving its quality must be able to equip students with skills, abilities, global competitiveness.[6]

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[4] I Ketut Sudarsana, "Peningkatan Mutu Pendidikan Luar Sekolah dalam Upaya Pembangunan Sumber Daya Manusia," *Jurnal Penjaminan Mutu*, Vol. 1, No. 1, (2016), pp. 1-14.
Doi: http://dx.doi.org/10.25078/jpm.v1i1.34

[5] A. Hariharasudan, & S. Kot, "A Scoping Review on Digital English and Education 4.0 for Industry 4.0," *Social Sciences*, Vol. 7, No. 11, (2018), p. 227. Doi: https://doi.org/10.3390/socsci7110227; M. Xu, J. M. David, & S. H. Kim, "The Fourth Industrial Revolution: Opportunities and Challenges," *International Journal of Financial Research*, Vol. 9, No. 2, (2018), pp. 90–95. Doi: https://doi.org/10.5430/ijfr.v9n2p90.

[6] V. Dwiyanti, A. Ana, & I. Widianingsih, "Industrial Education Impact on Vocational Student Social Skills," *Innovation of Vocational*

The fast development of science and technology in the era of globalization gave birth to various changes in aspects of human social life, including education.[7] To deal with developments in science and technology, education should prepare appropriate methods of adapting education to developments in science and technology. Blended learning is learning method that combines traditional learning and technology enriched learning.[8]

Blended learning as a learning method has proven useful and helps in improving students' English skills.[9] One of the efforts that can be done by education is to provide learning methods that are in accordance with these demands. The blended learning method is a learning method that is believed to be able to improve students' abilities,

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Technology Education, Vol. 14, No. 2, (2018), pp. 98–103. Doi: https://doi.org/10.17509/invotec.v14i2.14362.

[7] Wahyuni, S., "The Effect of Blended Learning Model towards Students' Writing Ability," *Journal of English for Academic*, Vol. 5, No. 2, (2018), pp. 97-111. Doi: https://doi.org/10.25299/jshmic.2018.vol5(2).1801

[8] Hosseinpour, Nafiseh; Biria, Reza; Rezvani, Ehsan, "Promoting Academic Writing Proficiency of Iranian EFL Learners through Blended Learning," *Turkish Online Journal of Distance Education*, Vol. 20, No. 4, (2019), pp. 99-116.

[9] Lee So, & Chung Hyun Lee, "A Case Study on the Effects of an L2 Writing Instructional Model for Blended Learning in Higher Education," *Turkish Online Journal of Educational Technology*, Vol. 12, No. 4, (2013), pp. 1-10.

especially English skills, and grow their enthusiasm for learning.[10] Many researchers state that a significant improvement in students' English learning outcomes is by applying the blended learning method in classroom learning.

From the facts above, the writer is interested in compiling a thesis entitled "The Effectiveness of Blended Learning Method in Improving Students' English Learning Outcomes (An Experimental Study at Eight Graders of MTs Fatahillah Ngaliyan in Academic Year of 2021/2022)". To test the effect size of the students' average English proficiency after using the blended learning method.

Research Question

From the explanation that has been described in the background to the problem, we can take some formulations of the problem which will be the object of discussion in writing this scientific paper as follow: Is the implementation of blended learning method effective in improving English learning outcomes of eight grade students of MTs Fatahillah Ngaliyan in academic year of 2021/2022?

[10] G. Ginaya, I. N. M. Rejeki, , & N. N. S. Astuti, "The Effects of Blended Learning to Students' Speaking Ability: A Study of Utilizing Technology to Strengthen the Conventional Instruction. *International Journal of Linguistics*: *Literature and Culture, 4*(3), (2018), pp. 1-14. Retrieved from https://sloap.org/journals/index.php/ijllc/article/view/158

Research Objective

Based on what has been described in the background of this research, the objective of this study is: To exemine the effectiveness of implementation of blended learning method in improving English learning outcomes of eight grade students of MTs Fatahillah Ngaliyan in academic year of 2021/2022.

Significance of the Study

The Student

This study is able to explain the effectiveness of the application of the blended learning method and students can learn the blended learning method from this research. So, the result of this research can understand the implementation of blended learning method to be effective in improving students' English learning outcomes.

Teachers

For educational purposes, this study can be their sources of teaching and learning about English profiencies, especially the implementation of blended learning method to be effective in improving students' English learning outcomes.

Writer

The study helps people gain more understanding about the implementation of blended learning method to be effective in improving students' English learning outcomes.

CHAPTER II

REVIEW OF RELATED LITERATURE

Previous Research

The first is a research from Jiyou Jia, Yuhao Chen, Zhuhui Ding, & Meixian Ruan, titled "Effects of a Vocabulary Acquisition and Assessment System on Students' Performance in a Blended Learning Class for English Subject." This study explains that the learning outcomes and vocabulary test of the experimental class students during one semester increased significantly compared to the control class students' learning and vocabulary test results. Therefore, the experimental class students became the best of the sixteen classes at the same level, compared to their previous achievements before this experiment. The results of the survey and interviews with students showed that the blended learning method was able to provide a good system in improving vocabulary acquisition and listening comprehension, and bridged students' desires for a good syllabus design. The results of the study describe that students' performance in vocabulary acquisition and tests can be improved by applying the blended learning method in English classes with vocabulary acquisition and individual assessment. This method can be used in other English classes.[1]

[1] Jiyou Jia, Yuhao Chen, Zhuhui Ding, Meixian Ruan, "Effects of a Vocabulary Acquisition and Assessment System on Students' Performance in

The second is a research from Gede Ginaya, I Nyoman Mei Rejeki, Ni Nyoman Sri Astuti, titled "The Effects of Blended Learning to Students' Speaking Ability: A Study of Utilizing Technology to Strengthen the Conventional Instruction." This paper describes a structured attempt to investigate the effect of blended learning through the application of WebQuest project tasks embedded in a modified conventional teaching model to students' speaking ability in a vocational college. The results of the study describe that the ability to speak English, motivation and interest of the experimental class students increased significantly. There are suggestions for good WebQuest-integrated teaching online.[2]

The thirth is a research from Najat Hussein Alsowayegh, Hisham Jameel Bardesi, Ibrahim Garba, & Muhammad Aslam Sipra, titled "Engaging Students through Blended Learning Activities to Augment Listening and Speaking." This study examines the effectiveness of the blended learning method in improving listening and speaking pedagogically at the tertiary level. Measurements of student engagement, satisfaction, the role of the teacher, as well as materials

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a Blended Learning Class for English Subject," Computers & Education, Vol. 58, (2012), pp. 63–76.

[2] Gede Ginaya, I Nyoman Mei Rejeki, Ni Nyoman Sri Astuti, "The Effects of Blended Learning to Students' Speaking Ability: A Study of Utilizing Technology to Strengthen the Conventional Instruction," *International Journal of Linguistics, Literature and Culture*, Vol. 4, No. 3, (May, 2018), pp. 1-14.

and exams are provided online by the teacher. The results of the research from the data analyzed with descriptive statistics explain that the application of the blended learning method is effective in improving students' English listening and speaking at the basic level.[3]

The forth is a research from Harpiansi Harpiansi, & Nyayu Yayu Suryani, titled "Blended Learning in English Academic Reading to Respond Revolution 4.0." The 4th industrial revolution affects many areas in today's global era, including higher institution. The limited time and place to study can be overcome with blended learning. Network expansion and equipping students' English skills are two things that universities must do. The purpose of this study was to test the effectiveness of blended learning in improving English academic reading skills. This study applies an experimental method with a pretest-posttest control design.[4]

The fifth is a research from Muhammad Al Roomy, & Abdulaziz Althewini, titled "The Impact of Blended Learning on Medical Students' Reading Performance in a Saudi University." This study

[3] Najat Hussein Alsowayegh, Hisham Jameel Bardesi, Ibrahim Garba, & Muhammad Aslam Sipra, "Engaging Students through Blended Learning Activities to Augment Listening and Speaking," *Arab World English Journal*, No. 5, (July 2019), Pp. 267-288.

[4] Harpiansi Harpiansi, & Nyayu Yayu Suryani, "Blended Learning in English Academic Reading to Respond Revolution 4.0," *Voices of English Language Education Society,* Vol. 3, No. 2, (October, 2019), Pp. 144-153.

examines the effectiveness of the blended learning method mixed with an extensive online reading program to improve students' reading comprehension. The results showed that the application of the blended learning method with an extensive online reading program created an environment that was able to make students excited. The students' views about reading as a tedious activity turned into a fun activity. This research also promotes learning impact and suggests more thorough research to help teachers create solutions to improve students' reading comprehension through blended learning methods.[5]

The sixth is a research from Khaleel Bader Al Bataineh, Ala'Eddin Abdullah Ahmed Banikalef, & Abeer H. Albashtawi, titled "The Effect of Blended Learning on EFL Students' Grammar Performance and Attitudes: An Investigation of Moodle." The purpose of this study was to analyze the attitudes of Jordanian EFL students towards blended learning. The quasi-experimental design used in this study was followed by qualitative interviews. The results of this study explain that blended learning is effectively used in teaching grammar in the EFL class. This research is intended that these results will help

[5] Muhammad Al Roomy, & Abdulaziz Althewini, "The Impact of Blended Learning on Medical Students' Reading Performance in a Saudi University," *Advances in Language and Literary Studies*, Vol. 10, No. 4, (July, 2019), Pp. 95-104.

universities, faculty, and students to develop the skills necessary for blended learning.[6]

The seventh is a research from Sri Wahyuni, titled "The Effect of Blended Learning Model towards Students' Writing Ability." To assist students in solving writing problems, this study was conducted to determine the effect of the blended learning model on the writing skills of class XI SMAN 6 Pekanbaru. Data were collected with a test instrument. The data were analyzed by comparing the pre-test and post-test data from the experimental and control classes using the paired sample t-test. The results showed that the learning outcomes of the two groups were statistically different where the experimental class learning outcomes were better in the post-test.[7]

From the previous researches, it showed that the implementation of belnded learning method can be effective in developing English profiencies. Based on the results of some previous researches, the writer is interested in examining meta-analysis to know whether the implemention of belnded learning method is effective in improving

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[6] Khaleel Bader Al Bataineh, Ala'Eddin Abdullah Ahmed Banikalef, & Abeer H. Albashtawi, "The Effect of Blended Learning on EFL Students' Grammar Performance and Attitudes: An Investigation of Moodle," *Arab World English Journal*, Vol. 10, No. 1, (March 2019) Pp. 324–334.

[7] Sri Wahyuni, "The Effect of Blended Learning Model towards Students' Writing Ability," *Journal of English for Academic*, Vol 1, No. 1, (2018), Pp. 97-111.

students' English proficiencies. Therefore, the wtiter are interested in compiling a thesis entitled "The Effectiveness of Blended Learning Method in Improving Students' English Learning Outcomes: Meta-analysis ". To find out the average effectiveness of students' English learning outcomes after the use of blended learning.

Review of the Related Literature

Learning Methods

The learning method is a systematic way of working that facilitates the implementation of learning in the form of specific implementation of concrete steps so that an effective learning process occurs to achieve a certain goal such as positive changes in students. The explanation of each type is as follows:

E-Learning

E-learning is composed of two elements which include "e" which means "electronics" and "learning" which means "learning." It can be explained that learning using the help of electronic instruments is the definition of E-learning. Audio, video or a combination of both instruments are used in e-learning. Learning that applies technology services such as telephone, computer, video, or internet is categorized

as e-learning.[8] Purbo[9] explained that all electronic technologies used to provide teaching materials to improve student learning outcomes are defined as e-learning. Internet, smartphones, video calls can be categorized as e-learning. E-learning can provide learning in real time and delay.

The previous explanation describes that there are various definitions of e-learning. Hartley[10] explained that learning that allows the delivery of learning materials to students via the internet or media with computer networks is called e-learning. Furthermore, Glossary of e-Learning Terms[11] explains that learning provided by electronic applications, such as computers and internet networks, to support student learning in a learning system is called e-learning. In short, Horton & Horton[12] states that e-learning is defined as a learning activity

[8] Tafiardi, "Meningkatkan Mutu Pendidikan Melalalui E-Learning," *Jurnal Pendidikan Penabur*, Vol. 4, No. 4, (2005).

[9] Onno W. Purbo in Amin Suyitni, *Dasar-Dasar dan Proses Pembelajaran Matematika I,* (Semarang: FMIPA Universitas Negeri Semarang, 2004)

[10]John Hartley, *Communication, Culture, and Media Studies: Konsep Kunci*, (Yogyakarta: Jalasutra, 2010).

[11] Glossary of e-Learning Terms **(**2001), *LearnFrame.Com.*

[12] William Horton & Katherine Horton, *E-Learning Tools and Technologies: A consumer guide for trainers, teachers, educators, and instructional designers*, (USA: Wiley Publishing, Inc., 2003)

that focuses on the internet network. Menwhile, Brown and Feasey in Siahaan[13] simply say that e-learning is an effort to use the internet network in learning activities that is used as a delivery method, interacting with various learning materials loaded.

There are still many definitions of e-learning more broadly. The distribution of e-learning learning materials does not need to be done online, either through the internet or not. Interaction using the internet can be done online and real-time or offline or archived. Offline distribution using CD/DVD media is also an e-learning pattern. The spread of application and learning materials can be done via CD/DVD with which students can learn even though students are in different places.[14]

Multimedia Learning

Multimedia is an interrelated combination of digitally manipulated text, photos and images, sound, animation and video.[15] Multimedia comes from the words multi and media. Multi has the

[13] Sudirman Siahaan, "Studi Penjajagan tentang Kemungkinan Pemanfaatan Internet untuk Pembelajaran di SLTA di Wilayah Jakarta dan Sekitarnya," *Jurnal Pendidikan dan Kebudayaan*, Vol. 8, No. 39, (November 2002).

[14] Lukmana, *Pedoman Penyusunan Bahan Ajar,* (Jakarta : Direktorat Pembinaan Sekolah Menengah Atas, 2006).

[15] Tay Vaughan, *Multimedia : Making it Work*, 8th Edition, (New York : McGraw-Hill, 2011), p. 1.

meaning of many or various, meanwhile, media has the meaning of an intermediary or tool that is used as a conveyer or carrier of something material. Multimedia is defined as an instrument used to convey information to be more interesting.[16] Utilization of text, images, sound, and video with a computer-based interface that allows users to interact with them. Multimedia system is part of the application of multimedia.[17]

The use of various types or forms of instruments sequentially or simultaneously to convey information refers to the term multimedia. Merril et.al[18] an understanding that a mixture of various forms of instruments in the form of text, graphics, sound, animation and computer-based video is a multimedia definition. The same definition is expressed by Hackbarth[19] explaining that:

> "Multimedia is suggested as meaning the use of multiple media formats for the presentation of information, including texts, still or animated graphics, movie segments, video, and audio information. Computer-based interactive multimedia includes hypermedia and hypertext. Hypermedia is a computer-based system that allows interactive linking of multimedia format

[16] Munir, *Multimedia: Konsep dan Aplikasi dalam Pendidikan*, (Bandung: Alfabeta, 2013), p. 2.

[17] Fredt Hofstetter, *Multimedia Literacy*, (Third Edition.McGraw-Hill, Irwin, 2001), p. 2.

[18] Merril et al, *Computre in Education*, (Simon & Schuster Company Nedham Heights, Mass. 02194)

[19] S. Hackbarth, *The Educational Technology Handbook*, (New Jersey: Educational Technology Publication, 1996)

> information including text, still or animated graphic, movie segments, video, and audio. Hypertext is a non-linier organized and accessed screens of text and static diagrams, pictures, and tables."

Hypermedia and hypertext are forms of interactive multimedia provided by computers. Hypermedia is defined as media that users use to interact interactively combining various forms of content such as "text, still images, animation, film, video, and audio." Hypertext is described as "a non-linear and accessible static view of text and static diagrams, images, and tables."

The combination of several types of media that includes "text, graphics, images, photos, audio, video and animation" is connected together called multimedia. Meanwhile, learning is characterized as an effort to create an environment that supports the learning process. The previous explanation indicated that multimedia learning is a combination of various kinds and forms of media that are used to convey information, such as knowledge, skills, and attitudes, in the learning process to encourage increased thought processes, feelings, attention, and motivation to learn with the aim of controlling the learning process.[20]

Multimedia learning is defined as a physical means where learning content or materials, such as "text, graphics, images, photos,

[20] Ariani Niken, *Pembelajaran Multimedia di Sekolah*, (Jakarta: Prestasi Pustakaraya, 2010), pp. 25-26.

audio, video, and animation", can be delivered in an integrated manner. Thus, Suheri[21] Suheri explained that there are two types of multimedia which include one-way multimedia and reciprocal multimedia such as "text, graphics, images, photos, audio, video and animation in an integrated manner." Vaughan[22] states that multimedia learning is an effort to unify various types of media, such as text, animation, and video, aimed at teaching students electronic, computer or digital-based instruments. It is intended to provide a reciprocal and real learning experience to students. Meanwhile, Richard E. Mayer[23] states that multimedia refers to two elements of message channels such as words and images when viewed from the presentation or auditory mode and visual when viewed from the sensory mode that captures the message. Multimedia-learning according to Sanjaya[24] is learning that is designed using various media simultaneously such as text, images (photos), films (videos) and so on, all of which work together to achieve the learning objectives formulated previously.

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[21] Agus Suheri, "Animasi Multimedia-learning," *Jurnal Media Teknologi*, Vol. 2, No. 1, (2006), p. 3.

[22] Tay Vaughan, *Multimedia : Making it Work*, 8th Edition, (New York : McGraw-Hill, 2011), p. 1.

[23] Richard E. Mayer, *Multimedia Learning*, (Yogyakarta: Pustaka Pelajar, 2009)

[24] Wina Sanjaya, *Media Komunikasi Pembelajaran*, (Jakarta: Kencana Prenada Media Group, 2014), p. 219.

Mobile Learning

Another paradigm in the field of learning is mobile learning. The massive development of information and communication technology today encourages the emergence of mobile learning. In addition, it cannot be denied that mobile communication devices are one of the devices that are attached to everyday life, including teachers and students. Mobile learning has changed the traditional one-way learning approach where students are taught by the teacher passively. As stated by Lu et al. that the traditional explanation in which the teacher teaches students passively or one-way can be reduced by the application of mobile learning.[25]

The use of technology and mobile devices is a hallmark of mobile learning. The devices in question are in the form of cellular telephones, Personal Digital Assistants (PDAs), Personal Computer (PC) tablets, laptops and so on. Mobile learning allows students to learn learning materials that are not limited by time and place and students can access the materials they need from their own homes and at their leisure.

[25] A. Kitchenham, *Models for Interdisciplinary Mobile Learning: Delivering Information to Students,* (Pennsylvania: Information Science Reference, 2011)

Darmawan[26] explained that mobile learning develops because: a) it is not limited by time and place; b) availability of very wide cellular access by many cellular providers; c) a well-integrated network system through e-learning, education delivery systems, and other educational support systems. A learning approach that incorporates various communication technology devices such as mobile phones, PDAs, laptops and tablet PCs that allow students to obtain learning materials anywhere and anytime is a hallmark of mobile learning.

Mobile learning allows students to: a) access materials that are integrated with technology and information equipment, especially computers; b) obtain information and learning from the equipment; c) taught by two-way communication with the teacher. However, students need to choose wisely the learning materials that suit them through mobile learning. The benefits of using mobile learning in learning are stated by Moura and Carvalho[27] that "mobile devices were important educational tools, extending the boundaries of the classroom and providing students with more learning options. They predicted that

[26] D. Darmawan, *Sistem Informasi Manajemen*, (Bandung: Rosda, 2013).

[27] A. Moura, & A. Carvalho, *Mobile learning with cell phones and mobile flickr: One experience in secondary school*. In Sanchez Inmaculada Arnedillo (ed.), IADIS International Conference Mobile Learning (mLearning) 2008. Algarve, Portugal, 216-220.

mobile devices and wireless technologies would become routine both inside and outside the classroom."

However, the presence of mobile learning does not eliminate the role of the teacher. As stated by Lefoe et al.[28] that educators are required to master mobile technology because it is a requirement for educators to be able to apply mobile learning in their pedagogical learning. Therefore, educators need to spend time and effort to regulate the application of mobile learning in learning because the structure and workload causes educators to forget the pedagogical aspects of mobile learning. Senjaya[29] states that the role of educators in this digital era is as a facilitator, where educators act as service providers and accommodate the needs of students in learning. The teacher acts as a learning companion for students in a democratic and fun learning atmosphere. The role of educators in implementing mobile learning includes several points: a) encouraging students to be actively involved in learning activities; b) ensure that learning is practical and effective; c) provide sufficient time and opportunity for students to demonstrate knowledge and skills; d) provide learning that is tailored to the experience and level of students' abilities; and e) enable the formation

[28] G. Lefoe, I. Olney, R. Wright, & A. Herrington, *Faculty Development for New Technologies: Putting Mobile Learning in the Hands of the Teachers*, (Wollongong: University of Wollongong, 2009)

[29] W. Senjaya, *Strategi Pembelajaran; Berorientasi Standar Proses Pendidikan*, (Jakarta: Kencana Prenada Media Group, 2008).

of mutual understanding between educators and students. Sanjaya[30] explained that optimizing the role of educators can be done by understanding several things related to the application of media and learning materials. The application of suitable and diverse learning materials and media in every learning activity where educators are not the sole learning source for students is something that educators must do.

Blended Learning

The term blended learning is etymologically formed from two words, namely blended and learning. The Collins dictionary describes the word blended as ""mix together to improve the quality for better," meanwhile, the Oxford English Dictionary[31] describes the word blended as "the formula of combination or combination." However, learning in general means learning. Therefore, the combination of the two words can be interpreted as a learning model that mixes several patterns.

In practice, there are two elements in blended learning which include offline classroom learning and online learning outside the classroom. The point is learning in the classroom called conventional

[30] W. Senjaya, *Strategi Pembelajaran; Berorientasi Standar Proses Pendidikan*, (Jakarta: Kencana Prenada Media Group, 2008).

[31] Heinze & Procter, "Online Communication and Information Technology Education," *Journal of Education,* Vol. 5, (2006), Pp. 235-249.

learning combined with online learning outside the classroom where students learn independently or collaboratively using information and communication technology infrastructure. According to Harmon and Jones[32] states that this blended learning model combines face-to-face patterns in class or online use of the web.

Bath & Bourke[33] explains that Blended learning is the delivery of an integrated teaching and learning process effectively, namely through various delivery, learning methods, learning styles as a result of applying a strategic and systematic approach to the use of technology combined with interesting teaching for students.

Blended learning applies the combination of "multimedia technologies, CD-ROM, video streaming, virtual classes, e-mail, voicemail and others with traditional forms of classroom training and whatever training is required." To present a learning process that is in accordance with learning styles and learning resources is to apply blended learning. Hybrid learning is another term used for blended learning. Hybrid learning applies a combination, a mixture in learning that has the same meaning as blended learning. The point is combining

[32] A. D. Harmon & T. S. Jones, *Elementary Education: A Reference Handbook*, (California: ABC-CLIO, inc., 2005), p. 125

[33] D. Bath & J. Bourke, "The Blending of Blended Learning: An Experiential Approach to Academic Staff Development," *Ascilite*, Vol. 1, No. 1, (2011), pp.133-138.

or mixing the two learning approaches used so that new learning patterns are created and will not cause boredom in students.

In general, blended learning has three meanings, namely: “1) integration/integration of traditional learning with on-line web-based approaches; 2) a combination of media and tools (eg textbooks) used in an e-learning environment, and 3) a combination of a number of teaching and learning approaches regardless of the technology used.” Two learning environments are combined in blended learning. The two learning environments are the face-to-face learning environment in traditional learning and the distributed learning environment which is growing due to the impact of the massive development of technology and communication. Therefore, blended learning is characterized by learning that combines face-to-face learning and online learning outside the classroom. The combination of inexpensive face-to-face learning and online technology by maximizing the delivery of information and knowledge in a globalized world is called blended learning.

Several kinds of learning instruments, such as “real-time collaboration software, online web-based programs, and performance of electronic support systems in learning environment tasks, and knowledge management systems” are part of the blended learning program. Various activities carried out in blended learning include traditional, online and independent learning. The blended learning model allows a combination of traditional learning with educators, internet integrated learning, e-learning learning without being

connected to the internet, and structured task-based learning by educators. The combination of traditional learning and online learning is the goal of blended learning. It can be concluded that blended learning is a learning model that combines various things related to learning such as e-learning, traditional learning with face-to-face which can be explained through the following figure:

Figure 2.1 Conception of BL

English Skills

The era of globalization are required students to be able to compete with students form other nations. However, this will not work well if their English language skills are minimal. Therefore, English skill is one of the main requirements to compete in the era of globalization. Language not only acts as a communication tool but can also make it easier for them to adapt to their environment and work. Therefore, it is important for them to learn English. By mastering English skills, they are one step ahead of achieving your goals. The English skills are as follows:

Writing

Writing which is a physical and cognitive activity that requires writers to produce several things which include "words, spelling, sentence structure, punctuation, etc." which are used to convey messages are part of language skills. Alice Ochima states:

> "Writing is a progressive activity. This means that when you first write something down, you have already been thinking about what you are going to say and how you are going to say it. The after you have finished writing, you read over what you have written and make changes and corrections. Therefore, writing is never a one step actions; it is a process that has several steps."[34]

Writing is a combination of certain rules whose purpose is to relate words to sentences, sentences to paragraphs, and paragraphs to different texts with conversations that produce letter combinations related to sounds. This is what causes writing to contain complexities that make writing activities difficult or planned. Writing requires the cognitive effort required to structure and combine words into sentences and sentences into paragraphs and so on. Students need to concentrate and increase their creativity to convey ideas when they are doing writing activities. Writing is a series of thought processes that aim to

[34] Alice Ochima, *Introduction to Academic Writing*, (New York: Addison Wesley Longman,1997),2nd Ed, p.2

find ideas, organize them, convey them and many things that cannot really appear on the page of writing.[35]

One of the means of communicating is writing where writing involves cognitive processes used by writers to find ideas, organize them, connect them into a coherent and coherent whole of ideas, so that the results of writing can be conveyed. Finnochiaro says that "writing is characterized as written thought."[36] It can be concluded that writing is the expression of ideas based on the thought process. Therefore, the writer concludes that writing is an expression of feelings and ideas developed through a thought process in the form of sentences.

Reading

Reading is derified from the word 'read'. Terms of reading can be some definition based on the purpose like the definition of reading according to Frederick Cline et all. They define reading as follow:

> "Reading is decoding and understanding written text. Decoding requires translating the symbols of writing systems (including braille) into the spoken words they represent. Understanding is

[35]Dyah Maya Sari, The Case of The Eight Year Students of SMPN Demak in The Academic Year of 2007/2008, (Skripsi Semarang: Perpustakaan UNNES, 2008), p.13.

[36] Mary Finocchiaro, *English as a second Language: from Theory to Practice*,(New York: Regents Publishing Company, Inc, 1974), p.130

> determined by the purposes for reading, the context, the nature of the text, and the readers' strategies and knowledge."[37]

The previous explanation shows that the term reading can be defined as the process of revealing the text of a word or image whether it be wood, metal or stone carvings; instructions in the form of reliefs printed on household appliances and others. Traffic signs, mobile phone notifications, home addresses on delivery packages and even party slogans are part of the text. Short text as described earlier is usually referred to as "environmental print." Other types of reading are musical notation and computer coding is another form of speech based on the writing system because the meaning of reading itself is the expression of symbols which represent ideas of the mind. Text or symbols in relief without color are often used.

However, Frederick Cline et all gave explanation about the term of reading which is different with the explanation above:

> "Reading is decoding and understanding text for particular reader purposes. Readers decode written text by translating text to speech, and translating directly to meaning. To understand

[37] Frederick Cline; Christopher Johnstone & Teresa King, 2006, *Focus group reactions to three definitions of reading (as originally developed in support of NARAP goal 1).* Minneapolis, MN: National Accessible Reading Assessment Projects.p.5

> written text, readers engage in constructive processes to make text meaningful, which is the end goal or product."[38]

The explanation above means that writing is a thought process used to store information. To show written text, one can use storage technology in the form of a computer or the internet. Writing is a cognitive process that is more difficult to do than reading.

The next explanation of reading is also conveyed by Frederick Cline et all. Their explanation as follow:

> "Reading is the process of deriving meaning from text. For the majority of readers, this process involves decoding written text. Some individuals require adaptations such as braille or auditorization to support the decoding process. Understanding text is determined by the purposes for reading, the context, the nature of the text, and the readers' strategies and knowledge."[39]

This means that there are many ways that one can use to parse and understand speech-form text. To be able to understand the meaning of words that are not understood, one can make use of "morphemes,

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[38] Frederick Cline; Christopher Johnstone & Teresa King, 2006, *Focus group reactions to three definitions of reading (as originally developed in support of NARAP goal 1).* Minneapolis, MN: National Accessible Reading Assessment Projects.p.5

[39] Frederick Cline; Christopher Johnstone & Teresa King, 2006, *Focus group reactions to three definitions of reading (as originally developed in support of NARAP goal 1).* Minneapolis, MN: National Accessible Reading Assessment Projects.p.5

semantics, syntax and context clues." The words that have been read can be put together and linked into the building of knowledge or reasoning that exists in “schema theory.”

Reading can be done in public for the purpose of entertaining or conveying messages to listeners, although reading is essentially an individual activity. Reading aloud is not always done in public because reading aloud can be intended to strengthen understanding which is a type of "intrapersonal communication." Instilling language and expression in young children can be done by reading aloud which aims to introduce understanding of the text. The ability to read silently was categorized as an extraordinary ability before the end of the Middle Ages.[40]

According to Aryan van der Leij in his article entitled "Acquiring reading and vocabulary in Dutch and English: the effect of convergen instruction" argues that:

> “Studies of children’s reading progress in bilingual programs indicate that cognitive skills transfer across languages and that L1 cognitive, linguistic and reading skills predict progress in learning to read in a second language (e.g., Comeau, Cormier, Grandmaison, & Lacroix, 1999; Cisero & Royer, 1995; Durgunog˘lu, Nagy, & Hancin-Bhatt, 1993; Gottardo, Yan, Siegel, & Wade- Woolley, 2001; Lindsey, Manis, & Bailey, 2003; Riccio et al., 2001). It therefore seems fair to say that the basic skills in the native language provide the foundation for

[40]See Alberto Manguel *A History of Reading*, (New York: Viking, 1996).

> learning a foreign language, as was originally hypothesized by Ganschow, Sparks, Javorsky, Pohlman, and Bishop-Marbury (1991). For example, phonological processing, the efficient use of orthographic knowledge, and verbal memory capacity contribute to the transfer of reading related skill across languages (Geva & Siegel, 2000)."[41]

The reading fulency is very important in the bilingual students because in can understanding in their speech. The study about reading fluency can be showed from a study conducted by Patrick Snellings, he explained as follow:

> "Because reading fluency problems are the main characteristic of poor readers in an orthographically transparent language like Dutch, research into their speech perception problems should take speed measures into account. In addition, research is needed to clarify whether differences between RD children and CA controls were due to fast transitions or to phonetic similarity."[42]

Based on some of the explanations above, the writer can conclude that reading is an attempt to acquire meaning or ideas through a complex cognitive process by deciphering and disclosing symbols. The acquisition of language, information, ideas and communication can be done by reading. Reading is a complex interaction between the reader and the object of reading which is influenced by "early knowledge,

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[41] Aryan van der Leij; Judith Bekebrede and Mieke Kotterink, 2009, *Acquiring reading and vocabulary in Dutch and English: the effect of concurrent instruction*, Springer, P. 416

[42] Patrick Snellings; Aryan van der Leij; Henk Blok & Peter F. de Jong, 2010, *Reading fluency and speech perception speed of beginning readers with persistent reading problems: the perception of initial stop consonants and consonant clusters,* Springer, P.154

experience, attitudes, and the reader's language community," which cannot be separated from the cultural and social context. Continuous training is needed to develop and perfect reading skills.

Today, technological developments allow readers to carry out word reading activities on paperless media, such as on websites, social media, pdf books which are not common in previous decades where the activity of reading words on printed media using paper and ink such as "in books, magazines, newspapers, flyers, or notebooks."

The striking contrast between the writing and the background makes it easier for someone to carry out reading activities. This depends on "the color of the letters and background, any pattern or image in the background, and the lighting," as well as the font size being not too small. Reading on a computer demands writing that is not written horizontally.

In its development, there are studies on how a person performs reading text activities. It is the reader's eye that is the focus of this study. This technique allows researchers to assess reading ability based on the speed of eye movement. Based on the context of sentences or paragraphs, readers can understand the information from the reading in the reading without getting hung up on the words where they are missing some information. The ability of the reader to guess the information in the reading is the ability of linguistic order.

Listening

Recognition of listening as part of language skills that can be researched is based on the research of "James Brown, Ralph Nichols, and Carl Weaver" which laid the foundation for listening in which many modern researchers have conducted research for sixty years.[43] Roberts and Rankin in 1962 have explained that most humans use listening as a way of communicating, but it wasn't until 1940 that research on listening was carried out and a research association was formed.

Listening comprehension as an important method is placed at the top priority in language learning to improve communication skills and language proficiency.[44] Listening comprehension is the beginning of language acquisition. Understanding the meaning of the message expressed is the focus of language acquisition. Communicative competence is the goal of implementing the most solutive language teaching method which includes "Total Physical Response (TPR)[45] by Asher, Gattegno's Silent Way, Curran Community Language Learning, Suggestopaedia Lozanov, Terrell's Natural Approach, and others."[46]

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[43] Voncile Smith, "A Beginning, and an Editor Anticipates," *Journal of the International Listening Association*, 1, (1987), p. 1-2.

[44] Stephen Krashen, *Principles and Practice in Second Language Acquisition*, (NewYork: Pergamon, 1982).

[45] James J. Asher, *Learning Another Language through Actions: The Complete Teacher's Guidebook*, (Los Gatos, CA: Sky Oaks, 1977)

[46] Alice C. Omaggio, *Teaching Language in Context: Proficiency-Oriented Instruction*, (Boston, MA: Heinle, 1986); and Valerian A. Postovsky,

Listening ability is prioritized over speaking ability in most of the previously described teaching methods where the thing that stands out from listening is the similarity of denominators. Dunkel explains that: "this goal [the development of communicative competenceand oral fluency] is achieved by putting the horse (listening comprehension) before the cart (oral production). In other words, the key to achieving proficiency in speaking is developing proficiency in listening comprehension."[47]

Listening is understood as an activity used in teaching a second language, not just a skill used in response-based learning or, in its development, stimulus-based learning.[48] Several studies[49] explain that

"On Paradoxes in Foreign Language Teaching," *Modern Language Journal*, Vol. 59, No. 1, (1975), p. 18-21.

[47] Patricia A. Dunkel, "Developing Listening Fluency in L2: Theoretical Principles and Pedagogical Considerations," *Modern Language Journal*, Vol. 70, No. 1, (1986), p. 100.

[48] James R. Nord, "Listening Fluency Before Speaking, an Alternative Paradigm." Paper, Kentucky Foreign Language Conference, Lexington, 1977.

[49] Robert N. Bostrom, & Enid S. Waldhart, The Kentucky Comprehensive Listening Test, (Lexington: Univ. of Kentucky Press,1980); James I. Brown, "Listening-Ubiquitous Yet Obscure," Journal of the International Listening Association, 1 (1987), pp. 3-14; Dan Curtis, "College Survival Skills:The Importance of Listening Skills." Paper, Be Here Now Conference, College Survival Inc., San Francisco, 1986; Thomas G. Devine, "Listening: What Do We Know after Fifty Years of Research and Theorizing?"*Journal of Reading*, 4 (1978), pp. 296-304.

independent listening activities tend to have an impact on second language processing, which allows for the effectiveness of second language acquisition. However, regarding the previous explanation, there has been no in-depth research that explains the effectiveness of independent listening in improving second language acquisition. On the other hand, it is suspected that second language learners and educators understand how to listen in their mother tongue and that their intensive listening can be utilized or that listening skills will improve over time if it is often practiced.[50] "We cannot assume that listening skills are keen in the first language or that students' listening strategies are efficient. Consequently, teachers must attend both to the general process of listening comprehension and to comprehension in the foreign language."[51] Student swho enrollin language courses may need skills in listening.

Speaking

Productive skills or other language production besides writing are speaking skills. Speaking skills in which a person produces words

[50] Donna R. Long, "Listening: What's Really Going On in the Classroom?" Second Language Acquisition: Preparing for Tomorrow. Ed. Barbara Snyder, (Lincolnwood, IL: National Textbook, 1986), p. 28-37; and Alice C. Omaggio, *Teaching Language in Context: Proficiency-Oriented Instruction*, (Boston, MA: Heinle, 1986).

[51] College Entrance Examination Board, *Academic Preparation for College: What Students Need to Know and Be Able to Do*, (New York: College Board,1983), p. 75.

enable a person to communicate verbally with other people. On the other hand, writing skills are language production skills that allow a person to communicate with others in writing. Meanwhile, Penny Ur in her work entitled "A course in language teaching" explained:

> "(…) of all the four skills (listening, speaking, reading and writing), speaking seems intuitively the most important: people who know a language are referred to as 'speakers' of that language, as if speaking included all other kinds of knowing; and many if not most foreign languages learners are primarily interested in learning to speak."[52]

The explanation shows that speaking skill becomes an important skill where speaking requires various skills which cover "different aspects of language, ergo, speaking can be considered as a complicated process." Therefore, speaking is categorized as a complex skill that requires students to carry out a series of processes that include "intensive practice, and deepening." Nowadays, fluency in speaking is considered as the most ideal ability in mastering the target language for most people. This assumption is based on the belief that the level of a person's linguistic ability is measured based on a person's fluency in communicating with native speakers of the target language. The benchmark of target language knowledge is believed by many to be based on speaking ability as a "basic means of human communication." On the other hand, writing skills are considered only as a process

[52] Penny Ur, *A Course in Language Teaching: Practice and Theory*, (Cambridge: Cambridge University Press, 1996), p. 120.

approach because the writing process does not indicate language production activities but rather language processing activities. In writing, students are directed to obey every rule in every stage of language production.[53] Writing skills in their development are not considered a natural ability because writing requires a lot of practice that is full of rules in its various forms.

In contrast to speaking as a productive language skill, listening and reading are categorized as cognitive processes in parsing the meaning of language or information that a person receives. Meanwhile, in speaking a person is not enough to just receive and understand an information, on the contrary in listening and reading. In fact, Widdowson[54] explained that writing and speaking are productive and active skills, on the other hand, listening and reading are receptive and passive skills. Listening and reading allow a person to obtain information from sound or visual media, then understand it in the context of communication. Dakowsa[55] explains that "listening is involved in all areas of our lives, both public and private." Speaking

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[53] Jeremy Harmer, *The Practice of English Language Teaching*, (Harlow: Longman, 2001), p. 257

[54] H.G. Widdowson, *Teaching Language as Communication*, (Oxford: Oxford University Press, 1978), p. 57.

[55] Maria Dakowska, *Teaching English as a Foreign Language: A Guide for Professionals*, (Warszawa: Wydawnictwo Naukowe PWN, 2005), p. 212.

skills indirectly involve listening skills in the target language to enable someone to communicate with the other person. It seems that the interaction process is also established between the reader and the text which has an impact on understanding in reading.

Language skills, in fact, can be categorized based on the medium of communication, and not only skills categorized based on the reception and production of language in the target language. Widdowson explained that "Speaking and listening are said to relate to language expressed through the aural medium and reading and writing are said to relate to language expressed through the visual medium."[56] The point is that the linguistic process by producing sounds is part of listening and speaking, on the other hand, reading and writing. The medium of delivering language is from it all.

Grammar

Second language proficiency can be measured on the basis of grammar skills in a second language academic writing course. The measurement of grammatical ability is based on testing the assessment construct and the rating scale applied by educators where this has an impact on performance appraisal.[57]

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[56] H.G. Widdowson, *Teaching Language as Communication*, (Oxford: Oxford University Press, 1978), p. 57.

[57] T. F. McNamara, "Rethinking Alternative Assessment," *Language Testing*, Vol. 18, No. 4, (2001), pp. 329–332. Doi:

The main construct in measuring and assessing second language grammatical ability is the accuracy and complexity of grammar applied by writing where the construct is developed into several indicators in analyzing second language grammatical ability. The accuracy and complexity of grammar should be developed in accordance with the operational design so that the measurement of grammatical ability is targeted with more comprehensive indicators to provide information on grammatical abilities based on the "level of linguistic performance or language ability of students".[58] The level of accuracy and complexity of the grammar of a good second language will be able to classify the level of language proficiency of students.[59]

10.1177/026553220101800401; J. A. Upshur, & C. E. Turner, "Systematic Effects in the Rating of Second-language Speaking Ability: Test Method and Learner Discourse," *Language Testing*, Vol. 16, No. 1, (1999), pp. 82–111. Doi: 10.1177/026553229901600105

[58] Cumming, A., Kantor, R., Baba, K., Erdosy, U., Eouanzoui, K., & James, M., "Differences in written discourse in independent and integrated prototype tasks for next generation TOEFL," *Assessing Writing*, Vol. 10, No. 1, (2005), pp. 5–43. Doi: 10.1016/j.asw.2005.02.001; and R. Ellis, & F. Yuan, "The effects of planning on fluency, complexity, and accuracy in second language narrative writing," *Studies in Second Language Acquisition*, Vol. 26, No. 1, (2004), pp. 59–84. Doi: 10.1017/S0272263104026130

[59] C. G. Polio, "Measures of linguistic accuracy in second language writing research," *Language Learning*, Vol. 47, No. 1, (1997), pp. 101–143. Doi: 10.1111/0023-8333.31997003; and K. Wolfe-Quintero, S. Inagaki, & H.-Y. Kim, *Second Language Development in Writing: Measures of Fluency*

Efforts to obtain information on overall grammatical abilities I think grammar can be done with a good assessment based on the details of grammatical accuracy and complexity, which are considered as supporters of language accuracy, into representative indicators. It is important to carry out a grammatical or syntactic complexity analysis because it is alleged that "language development requires stages, an increase in the second language student's vocabulary of language rules and his ability to practice this vocabulary in a variety of contexts."[60] This shows that: a) over time students will be able to improve their grammar skills with basic and advanced qualities; b) a good structure based on the context and purpose of the communicative situation can be produced in line with the students' writing habits in the second

Accuracy & Complexity, (Honolulu, HI: University of Hawai'i, Second Language Teaching and Curriculum Center, 1998).

[60] L. Ortega, "Syntactic Complexity Measures and Their Relationship to L2 Proficiency: A Research Synthesis of College-level L2 Writing." Applied Linguistics, Vol. 24, No. 4, (2003), p. 492. Doi: 10.1093/applin/24.4.492

language.[61] However, both Beers and Nagy[62] and Ortega[63] warn that a text that has complex language complexity does not mean it is a text that has good quality, therefore, good writing is prioritized over text complexity.

Assessment of language performance in grammar is based on its accuracy and complexity as it is equated with the accuracy and complexity of spoken language in task-based contexts.[64] Li[65] points out

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[61] K. Wolfe-Quintero, S. Inagaki, & H.-Y. Kim, *Second Language Development in Writing: Measures of Fluency Accuracy & Complexity*, (Honolulu, HI: University of Hawai'i, Second Language Teaching and Curriculum Center, 1998).

[62] S. Beers, & W. Nagy, "Syntactic Complexity as a Predictor of Adolescent Writing Quality: Which Measures? Which Genre?," *Reading and Writing*, Vol. 22, No. 2, (2008), pp. 185–200. Doi: 10.1007/s11145-007-9107-5

[63] L. Ortega, "Syntactic Complexity Measures and Their Relationship to L2 Proficiency: A Research Synthesis of College-level L2 Writing." Applied Linguistics, Vol. 24, No. 4, (2003), p. 492. Doi: 10.1093/applin/24.4.492

[64] P. Skehan, "A Framework for the implementation of task-based instruction," Applied Linguistics, Vol. 17, No. 1, (1996), pp. 38–62. Doi: 10.1093/applin/17.1.38; P. Skehan, *A Cognitive Approach to Language Learning*, (Oxford: Oxford University Press, 1998); and P. Skehan, "Modelling Second Language Performance: Integrating Complexity, Accuracy, Fluency, and Lexis," *Applied Linguistics*, Vol. 30, No. 4, (2009), pp. 510–532. Doi: 10.1093/applin/amp047

[65] Y. Li, "Linguistic Characteristics of ESL Writing in Task-based E-mail Activities," *System*, Vol. 28, No. 2, (2000), pp. 229–245. Doi: 10.1016/S0346-251X(00)00009-9

the fact that the assumption about equations applied to written tests does not mean it is capable of providing complete information about grammatical abilities. Therefore, the joint use of accuracy and complexity must be considered. Although complexity is not clearly described in the grammar rating scale, grammatical accuracy has indirectly included grammatical complexity in the assessment of second language skills.[66] This shows that students' grammatical abilities can be assessed based on indicators of accuracy and grammatical complexity in the texts produced by second language students.

The description of grammatical accuracy tends to be interpreted as the suitability of writing with certain language rules,[67] meanwhile, the description of language concepts or grammatical complexity is generally interpreted by several rather unique indicators which include the size, range, and variation of linguistic resources at student completion.[68] In the practice of using grammatical complexity, Norris

[66] T. Lumley, Assessing Second Language Writing: The Rater's Perspective, (Frankfurt: Peter Lang, 2005).

[67] A. Housen, & F. Kuiken, "Complexity, accuracy, and fluency in second language acquisition," Applied Linguistics, Vol. 30, No. 4, (2009a), pp. 461–473. Doi: 10.1093/applin/amp048; and K. Wolfe-Quintero, S. Inagaki, & H.-Y. Kim, *Second Language Development in Writing: Measures of Fluency Accuracy & Complexity*, (Honolulu, HI: University of Hawai'i, Second Language Teaching and Curriculum Center, 1998).

[68] A. Housen, & F. Kuiken, "Complexity, Accuracy, and Fluency in Second Language Acquisition," *Applied Linguistics*, Vol. 30, No. 4, (2009a), pp. 461–473. Doi: 10.1093/applin/amp048

and Ortega[69] explain that there are multidimensional meanings in grammatical complexity which contain sub-clauses that have syntactic level complexity and include phrase complexity. Therefore, to obtain comprehensive information on grammatical abilities, it is necessary to first explain two measures of grammatical complexity that are relevant to measures of grammatical accuracy.

Hyphotesis

The hypothesis is a temporal guess from the formulation of the problem whose proof is done through a collection of collected data. The author proposes several hypotheses as follow:

The first is that the average student learning outcomes using the Blended Learning Method are better than minimum completeness criteria (MCC).

The second is that the experimental class students' average English learning outcomes using the blended learning method are better than control class students' average English learning outcomes.

[69] J. M. Norris, & L. Ortega, "Towards an Organic Approach to Investigating CAF in Instructed SLA: The Case of Complexity," *Applied Linguistics*, Vol. 30, No. 4, (2009), pp. 555–578. Doi: 10.1093/applin/amp044

CHAPTER III

RESEARCH METHOD

Research Setting

Experiment is the way to find the causal relationship between two factors which are raised by the researcher in purpose by reducing or eliminating any distracting treatments. The subjects of this research were devided into two groups: experimetal class which was taught using blended learning method and control class which was taught without blended learning method.

In this study, the approach used by writer was quantitative because the data that was gained were numeric and was analyzed by using statistical computation. Quantitative approach stressed the analyzes to the numerical data that is processed by statistical method.[1]

As it is explained above, the method of this research is experimental. The reason is that the writer wants to know the effectiveness of implementation of blended learning method to improve English learning outcomes.

[1] M Burhan Bungin, *Metodologi Penelitian Kuantitatif: Komunikasi, Ekonomi Dan Kebijakan Publik Serta Ilmu-Ilmu Sosial Lainya*, (Jakarta: Kencana, 2006), p. 50.

The design of the research is true experimental design. In this research, the form of true experimental design is posttest-only control design.[2]

R X O_1

R O_2

Where:

R1 = Random (The beginning condition of the experimental group)

R2 = Random (The beginning condition of the control group)

X = Treatmen

O_1 = Effect of treatment given

O_2 = Effect is not given treament

In this study, the approach used by writer was quantitative approach because the data gained were numerical data and analyzed by using statistical computation. Quantitative approach stressed on the analysis of the numerical data that is processed by statistical method. It will explain the result of pre–test and post–test.

[2] Sugiyono, *Metode Penelitian Kuantitatif Kualitatif dan R&D*, (Bandung: Alfa Beta, 2008), p. 112.

Research Participants

Population is "the whole subject of research".[3] Population is generally areas which consist of object/subject which has certain quality and characteristic which decided by the researcher to study and then collected the summary.[4] Population of this research was eighth grade students of MTs Fatahillah Semarang in the academic year 2021/2022 second semester.

"Sample is a subjet of individuals from a given population".[5] Sample is taking of a part population using certain procedure. So, that can be expected to represent its population. In this case, sample must be representative with the true example (population) in the field.

In this research, the researcher used cluster random sampling technique to choose which class to be the sample. Cluster random sampling is a technique to choose sample by random each class (population) and it is based on lottery. In this case, the researcher took sample from eighth grade students as an experimental class and a control class of MTs Fatahillah Ngaliyan Semarang in the academic year 2021/2022.

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[3]Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*, p. 130.

[4]Sugiyono, *Metode Penelitian Kuantitatif Kualitatif dan R&D*, p. 117.

[5]David Nunan, *Research Methods in Language Learning*, (New York: Cambridge University Press, 1992), p. 27.

Technique of the Data Collection

An instrument has important role in a research in the sense that reliability of data obtained. Instrument that used to collect the data in this research was test.

Arikunto explained that a test is sequences of question of exercise often are used to measure skill, knowledge, intelligent, or talent of individual group.[6] The instrument of the test in this research is objective test. Objective test is frequently criticized on the grounds that they are simple to answer than subjective test. Objective tests are divided into transformation, completion, combination, addition, rearrangement, matching, correct and incorrect (true/false) and multiple choice.[7] The reseacher used multiple choice forms.

The multiple choice test has some adventages. The fist is that multiple choice test contains more positive aspects, such as more representative and representative of the content area material, more objective, can be avoided interference subjective elements in terms of both learners and teachers in terms of examining. The second is that it is easier and faster way to check because it can use a key material test tools result by technological progress. The thirth is that examination can

[6]Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik.*, p 150

[7] J.B Heaton, *Writing English Language Tests* (London: Longman, 1975), p. 12-13.

be submitted another people. The fourth is that in the examination, no subjective element affecting.

Test is a question which is used to measure competence, knowledge, intelligence, and ability of talent which is possessed by individual or group to collect the data. The instrument of the test in this research is objective test (multiple choice test). The score of students' English learning outcomes can be calculated by using this following formula:

$$Score = \frac{The number of\ right\ answer}{The number of\ questions} x100$$

Technique of Data Analysis

The data analysis method, which is used in this research, is quantitative analysis. Quantitative analysis is concerned with the amount or number.

Test Instrument Analysis

When the quality of the data can be said good or bad, if the test instrument fulfills four important qualifications such as validity, reliability, difficulty level, and also discriminating power of each item. The researcher prepared one text. The text contains some vocabulary or items related to student's vocabulary. Before the items were given to the students, the researcher gave tryout test to analyze validity, reliability, difficulty level and also the discriminating power of each item. The test was given to an experimental class students of MTs

Fatahilah Ngaliyan. After finishing the test, the result were collected in order to be scored. An analysis was made based on the result of test by using the formula of validity, reliability, the degree of test difficulty and discriminating power. The choosing of the instrument had been done by considering: validity, realiability, the degree of test difficulty and discriminating power.

Validity of Test

Validity is always in relation to specific decision or use (R.L Thorndike and H.P Hagen 1997) and a test is valid if it measures what it purpose to be measured.[8] On the other hand, validity is the most important variable in judging the qualitynof measurement of an instrument before we use. A test is valid if it measurement what it purpose to be measured. As general, validity uses statistically technique with the technique analysis of correlation, why? Since validity look for relation between test score and certain criteria as a standard out of test. Of course, those criteria must be relevant with thing that can be measured.

Validity for multiple choice test used point biserial correlation for score 1 and 0 only. The multiple choice items test validity of using correlation point biserial as follows:

[8] Zainal Arifin, *Evaluasi Instructional,: Prinsip-Teknik-Prosedure*, (Bandung: PT Remaja Rosdakarya: 1990), p.110-111.

$$r_{pbis} = \frac{M_p - M_t}{S_t}\sqrt{\frac{p}{q}}$$

Where :

r_{pbis} : The correlation coefficient point biserial

Mp : Average total score of items answered correctly on question

Mt : Average total score

St : Standard deviation of total score

P : Proportion of students who aswered correctly

$$(p = \frac{\text{Number of students who answered correctly}}{\text{Total number of students}})$$

Q = The proportion of the students who answer incorrect =(q = 1 - p)

Having calculated r_{count} compared r_{table} with significance level of 5%, if $r_{count} > r_{table}$ then said valid.[9]

[9] Suharsimi Arikunto, *Dasar-Dasar Evaluasi Pendidikan*, (Jakarta: Bumi Aksara, 2009), Cet. 9, p. 79.

Reliability Test

It means consistency of measurement.[10] Reliability refers to the consistency of test scores. Besides having high validity, a good test should have high reliability too.

Alpha formula is used to know reliability of test is K-R.20.[11]

$$r_{11} = \left(\frac{n}{n-1}\right)\left(\frac{S - \sum pq}{S^2}\right)$$

Where:

r_{11} : The reliability coefficient of items

n : The number of item in the test

p : The proportion of students who give right answer

q : The proportion of students who give the wrong answer

S^2 : The standard deviation of the test

[10] J.B Heaton, *Writing Language Tests*, (London: Longman, 1975), p.155.

[11] Suharsimi Arikunto,*Dasar-Dasar Evaluasi Pendidikan*, p. 100-101.

$$s^2 = \frac{\sum x^2 - \frac{\left(\sum x\right)^2}{N}}{N}$$

Where :

$\sum x^2$ = the total score squared

$\left(\sum x\right)^2$ = square of the total score

Calculation result of r_{11} is compared with r_{table} of product moment by 5% degree of significance. If r_{11} is higher than r_{table} the item of question is reliable.

Degree of Test Difficulty

An item is considered to have a good difficulty level. It is not too easy or too difficult for the students (examinees), so that they can answer the items. If a test contains many items that are too difficult or too easy, it can not function as a good means evaluation. Therefore, every item should be analyzed first before it is used in a test.

$$P = \frac{B}{JS}$$

The formula of item difficulty is as:

Where:

P : Index of difficulty

B: The number of students who answer an item correctly

JS : The total number of students.[12]

Where the criterion of computation is:

Table 3.1 Criteria of Difficulty Test

P = 0,00	Is very difficult
0,00 < P ≤ 0,30	Is difficult
0,30 < P ≤ 0,70	Is medium
0,70 < P ≤ 1,00	Is easy
P = 1,00	Is very easy

Discriminating Power

The discriminating power is measure of the effectives on item undiscriminating between high and low scores of the whole test. The higher values of discriminating power are the more effective item.[13]

Discriminating power can be obtain by using this following formula:

[12] Anas Sudijono, *Pengantar Evaluasi Pendidikan*, (Jakarta:PT Raja Grafindo Persada, 2008), p. 372-373

[13] Suharsimi Arikunto, *Dasar –Dasar Evaluasi Pendidikan*, p. 391

$$D = \frac{BA}{JA} - \frac{BB}{JB}$$

Where:

D : Discrimination index

JA : The number of participants in the upper group

JB : The number of participants in the low group

BA : The number of participants in the upper group who answer the item correctly.

BB : The number of participants in the low group answering the item correctly.

The criteria of discrimination index is classified into four level as follows:

Table 1.2 Criteria of Discrimination Index

Criteria	
D≤0,00	Very poor
0,00 < D < 0,20	Poor
0,20 < D < 0,40	Enough
0,40 D ≥ 0,70	Good
0,70 < D ≤ 1,00	Excellent

Initial Analysis

Normality Test

Normality test is used to know the normality of the data that is going to be analyzed whether both groups have normal distribution or not. To find out the distribution data, normality test is done by using the Chi-square formula.

The first is to determine the range (R); the largest data reduced the smallest. The second is to determine the many class interval (K) with formula: K-=1+(3,3) log n. the thirth is to determine the length of the class, using the formula:

$$p = \frac{range\ R}{number\ of\ \ class}$$

The fourth is to make a frequency distribution table. The fifth is to determine the class boundaries (bc) of each class interval. The sixth is to calculate the average Xi($\overline{X}$), with the formula,

$$\overline{X} = \frac{\sum f_i x_i}{\sum f_i}$$

The seventh is to calculate variance, with the formula:

$$S = \sqrt{\frac{\sum f_i (x_i - \bar{x})^2}{n-1}}$$

The eighth is to calculate value of Z, with the formula:

$$Z = \frac{x - \bar{x}}{s}$$

x = Limit Class

$\bar{x}$ = Average

S = Standard deviation

The ninth is to define the wide area of each class interval. The tenth is to calculate the frequency expository (Ei), with the formula: Ei= n x wide area with the n number of sample. The eleventh is to make a list of the frequency of observation (Oi), with the frequency expository as follows:

Class	Bc	Z	P	L	Ei	$\frac{Oi - Ei}{Ei}$

The twelfth is to calculate the chi-square (X^2), with the formula:

$$\chi^2 = \sum_{i=1}^{k} \frac{(O_i - E_i)^2}{E_i}$$

The thirthtinth is to determine dk=k-3 where k is the number of class intervals and $\alpha = 5\%$. The fourtinth is to determining the value of X^2_{table} the fiftinth is to determining the distribution normality with test criteria: If $\chi^2_{count} < \chi^2_{table}$ so the data is not normal distribution and the other way if the $\chi^2_{count} < \chi^2_{table}$ so the data is normal distribution.[14]

Homogenity Test

Homogenity test is used to know whether experiment class and control class, that are taken from population have same variant or not. The hyphothesis used in the homogeneity test are:

H_0 : $\sigma_1^2 = \sigma_2^2$

H_1 : $\sigma_1^2 \neq \sigma_2^2$

H_0 = the distribution of normal date

H_1 = Unnormally distributed data

Where:

σ_1 = Variance value of beginning data with Aladdin movie

σ_2 = Variance value of beginning data is subjected to conventional learning classess.

[14] Sudjana, *Metode Statistika*, (Bandung: Tarsito, 1996), p. 273.

$$F_{count} = \frac{The\ biggest\ variance}{The\ smallest\ variance}$$

$$F_{table} = F_{\{\frac{1}{2}a(v_1.v_2)\}}$$

F_{count}= F distribution

Where:

s_1^2: Variant of experimental class

s_2^2: Variant of control class

n_1: The number of students in experimental class

n_2: The number of students in control class

v_1: Degrees of freedom of the biggest variance

v_2: Degrees of freedom of the smallest variance

Testing criteria:

H_0 accepted if $F_{count} < F_{[\frac{1}{2}(v_1.v_2)]}$ with $\alpha = 5\%$

If $F_{count} > F_{table}$, the data is not homogeneous and the other way if the $F_{count} < F_{table}$, the data is homogeneous.[15]

Test of the Average

[15] Sudjana, *Metode Statistika*, p. 250.

Test of average is used to examine average whether experiment group and control group that has been decided have different average.[16]To analyze the data of this reserch is used t-test. A t-test would be the measure you would use to compare the mean scores of the two groups.[17]

The t-test is represented with the symbol. It is a very useful measurement because it can be used with very large or very small groups. The adjustment for group size is made by using a table that shows different values for various group sizes.[18]

If $\sigma_1^2 = \sigma_2^2$ (has same variant), the formula is:

$$t = \frac{\overline{X}_1 - \overline{X}_2}{S\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

With

[16] Sudjana, *Metode Statistika.*, p. 262.

[17] Anas Sudjana, *Pengantar Statitika Pendidikan,* (Jakarta: PT. Raja Grafindo Persada, 1995) 6th Ed, p. 264.

[18] Rodgers and Brown, *Doing Second Language Research,* (Cambridge: Oxford University Press 2002), p.205.

$$S = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}$$

Where:

$\overline{X}_1$: The mean score of the experimental group

$\overline{X}_2$: The mean of the control group

n_1 : The number of experiment group

n_2 : The number of control group

S_1^2 : Variant of experiment group

S_2^2 : Variant of both groups

If = $\sigma_1^2 \neq \sigma_2^2$ (has no same variant)

the formula is:

$$t^1 = \frac{\overline{X} - \overline{X}}{\sqrt{S^2}}$$

The hypotheses are:

Ho = $\mu_1 = \mu_2$

Ha = $\mu_1 \neq \mu_2$

μ_1 : average data of experiment group

μ_2 : average data of control group

Criteria test is: Ho is accepted if $-t_{\left(1-\frac{1}{2}\alpha\right)} < t < t_{\left(1-\frac{1}{2}\alpha\right)}$, where $t_{\left(1-\frac{1}{2}\alpha\right)}$ obtained from the distribution list t with $dk = (n_1 + n_2 - 2)$ and opportunities $\left(1 - \frac{1}{2}\alpha\right)$. Values for other t Ho rejected.[19]

Analysis Phase End

The First step is the same as the normality test on the initial data. The second step is the same as the homogeneity test on the initial data. The thirth is test Average (Right-hand Test). Proposed hypothesis test in average similarity with the right test is as follow:

Ho = $\mu_1 = \mu_2$

Ha = $\mu 1 > \mu 2$

If $\sigma_1^2 = \sigma_2^2$ (has same variant), the formula is:

$$t = \frac{\overline{X}_1 - \overline{X}_2}{S\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

[19]Sudjana, *Metode Statistika*, p. 239.

With

$$S = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}$$

Where:

$\overline{X}_1$: The mean score of the experimental group

$\overline{X}_2$: The mean of the control group

n_1 : The number of experiment group

n_2 : The number of control group

S_1^2 : The standard deviation of experiment group

S_2^2 : The standard deviation of both groups

If = $\sigma_1^2 \neq \sigma_2^2$ (has no same variant) the formula is:

$$t^1 = \frac{\overline{X} - \overline{X}}{\sqrt{S^2}}$$

Testing criteria that apply Ho is accepted if $t_{count} > t_{table}$ with determine dk = (n_1 + n_2 - 2) and α = 5% with opportunities (1 - α). Values for other t Ho rejected.

CHAPTER IV

DESCRIPTION AND DATA ANALYSIS

To find out that there is a valid influence or not the implementation of the blended learning method that the researcher used in eighth grade students of MTs Fatahillah Semarang in the academic year 2021/2022 second semester. Then the data will be presented in the form of data descriptions, discussion of research results and research limitations.

Result Description

Instrumen Quality Description

Validity

Validity analysis is used to determine whether the test items are valid or not. Invalid questions will be discarded and not used while valid questions can be used for final evaluation in the experimental class and control class.

Based on the test questions that have been carried out with the number of participants N = 31 and a significance level of 5%, it is obtained r_{table} = 0.367. So the question is said to be valid if r_{count} > 0.367.

Table 4.1

Validity Test Results 1

Test Items	r_{xy}	r_{tabel}	Conclusion
1	1,019	0,367	Valid
2	0,713	0,367	Valid
3	-1,290	0,367	Invalid
4	0,876	0,367	Valid
5	0,454	0,367	Valid
6	-1,218	0,367	Invalid
7	-0,382	0,367	Invalid
8	0,731	0,367	Valid
9	0,840	0,367	Valid
10	0,607	0,367	Valid
11	0,742	0,367	Valid
12	0,712	0,367	Valid
13	0,664	0,367	Valid
14	-1,728	0,367	Invalid
15	0,452	0,367	Valid
16	-1,133	0,367	Invalid
17	-2,336	0,367	Invalid
18	0,478	0,367	Valid
19	-2,292	0,367	Invalid
20	0,588	0,367	Valid
21	0,578	0,367	Valid
22	0,159	0,367	Invalid
23	-0,087	0,367	Invalid
24	0,620	0,367	Valid
25	0,947	0,367	Valid
26	0,275	0,367	Invalid
27	-0,849	0,367	Invalid
28	-0,558	0,367	Invalid
29	-1,485	0,367	Invalid
30	0,159	0,367	Invalid
31	3,198	0,367	Valid
32	0,588	0,367	Valid

33	0,742	0,367	Valid
34	-1,290	0,367	Invalid
35	-2,336	0,367	Invalid
36	0,876	0,367	Valid
37	0,840	0,367	Valid
38	0,947	0,367	Valid
39	-2,336	0,367	Invalid
40	-1,290	0,367	Invalid

The results of the validity test in the trial class stage 1 contained 18 invalid test items, namely items of number 3, 6, 7, 14, 16, 17, 19, 22, 23, 26, 27, 28, 29, 30, 34, 35 , 39, and 40. While the valid test items are items of number 1, 2, 4, 5, 8, 9, 10, 11, 12, 13, 15, 18, 20, 21, 24, 25, 31, 32, 33 , 36, 37, and 38 so that they are used as the second stage of validity testing.

Table 4.2

Validity Test Results 2

Test Items	r_{xy}	r_{tabel}	**Conclusion**
1	1,998	0,367	Valid
2	0,967	0,367	Valid
4	1,998	0,367	Valid
5	1,599	0,367	Valid
8	1,458	0,367	Valid
9	1,998	0,367	Valid
10	1,458	0,367	Valid
11	1,458	0,367	Valid
12	1,998	0,367	Valid
13	1,387	0,367	Valid
15	1,150	0,367	Valid
18	1,670	0,367	Valid
20	1,670	0,367	Valid
21	1,998	0,367	Valid

24	0,967	0,367	Valid
25	1,998	0,367	Valid
31	1,599	0,367	Valid
32	1,458	0,367	Valid
33	1,998	0,367	Valid
36	1,458	0,367	Valid
37	1,202	0,367	Valid
38	1,670	0,367	Valid

The results of the validity of stage 2 prove that all numbers are valid, namely items of number 1, 2, 4, 5, 8, 9 ,10, 11, 12, 13, 15, 18, 20, 21, 24, 25, 31, 32, 33 , 36, 37, and 38.

Table 4.3

Validity Test Criteria

Criteria	Test Items	Total	Percentage
Valid	1, 2, 4, 5, 8, 9 ,10, 11, 12, 13, 15, 18, 20, 21, 24, 25, 31, 32, 33, 36, 37, dan 38	22	55%
Invalid	3, 6, 7, 14, 16, 17, 19, 22, 23, 26, 27, 28, 29, 30, 34, 35, 39,dan 40	18	45%

Reliability

After the validity test is carried out, then the reliability test is carried out on the instrument. Reliability test is used to determine the level of consistency of the instrument's answers. A good instrument accurately has consistent answers for whenever the instrument is presented. The results of the calculation of the reliability coefficient of

the question obtained r_{11} = 0.836. So it can be concluded that this question is a question that has high reliability, because the value of the correlation coefficient is greater than 0.70.

Power of Difference

After the validity and reliability tests are carried out, then the test of differentiating power is carried out. Where in this study the differentiating power of each item is not good as shown in appendix 10a & 10b.

Difficulty Level

In this study, the level of difficulty of the questions was fairly easy as shown in appendix 11a and 11b.

Table 4.3

Results of Difficulty Level of Items 1

Test Items	Difficulty Level	Conclusion
1	0.567	Moderate
2	0.700	Moderate
3	0.666	Moderate
4	0.567	Moderate
5	0.733	Easy
6	0.600	Moderate
7	0.500	Moderate
8	0.633	Moderate
9	0.333	Moderate
10	0.866	Easy
11	0.733	Easy

12	0.767	Easy
13	0.833	Easy
14	0.367	Moderate
15	0.833	Easy
16	0.433	Moderate
17	0.933	Easy
18	0.767	Easy
19	0.966	Easy
20	0.833	Easy
21	0.766	Easy
22	0.933	Easy
23	0.967	Easy
24	0.700	Moderate
25	0.600	Moderare
26	0.867	Easy
27	0.867	Easy
28	0.767	Easy
29	0.933	Easy
30	0.933	Easy
31	0.600	Moderate
32	0.833	Easy
33	0.733	Easy
34	0.666	Moderate
35	0.933	Easy
36	0.567	Moderate
37	0.333	Moderate
38	0.600	Moderate
39	0.933	Easy
40	0.600	Moderate

The results of the difficulty level test in the trial class stage 1 contained 18 easy items, namely items of number 1, 2, 3, 4, 6, 7, 8, 9, 14, 16, 24, 25, 31, 34, 36, 37 , 38, and 40. While the easy items are items of number 5, 10, 11, 12, 13, 15, 17, 18, 19, 20, 21, 22, 23, 26, 27, 28, 29, 30, 32 , 33, 35, and 39.

Table 4.4

Results of Difficulty Power of Items 2

Test Items	Difficulty Power	Criteria
1	1,000	Easy
2	0.767	Easy
4	1.000	Easy
5	0.967	Easy
8	0.967	Easy
9	1.000	Easy
10	0.967	Easy
11	0.967	Easy
12	1.000	Easy
13	0.967	Easy
15	0.900	Easy
18	0.967	Easy
20	0.967	Easy
21	1.000	Easy
24	0,767	Easy
25	1.000	Easy
31	0.967	Easy
32	0.967	Easy
33	1.000	Easy
36	0.967	Easy
37	0.900	Easy
38	0.967	Easy

The results of the difficulty level test in the trial class stage 2 contained 22 easy items, namely items of number 1, 2, 4, 5, 8, 9, 10, 11, 12, 13, 15, 18, 20, 21, 24, 25, 31, 32, 33, 36, 37, and 38, otherwise, there is no moderate criteria items due to the implementation of the method.

Learning Outcomes Description

After doing the research, the researcher got the learning outcomes from the experimental class using the blended learning method and the control class using conventional media. The value data will be used as a barometer to answer the hypothesis in this study. The learning outcomes of experimental and control class students are presented in the table below.

Table 4.5

List of Experimental Class Learning Outcomes

No	CODE	SCORE
1	E-01	100
2	E-02	90
3	E-03	100
4	E-04	100
5	E-05	90
6	E-06	80
7	E-07	100
8	E-08	100
9	E-09	100
10	E-10	100
11	E-11	100
12	E-12	100
13	E-13	100
14	E-14	100
15	E-15	100
16	E-16	100
17	E-17	100
18	E-18	100
19	E-19	100

20	E-20	80
21	E-21	100
22	E-22	80
23	E-23	100
24	E-24	100
25	E-25	100
26	E-26	100
27	E-27	90
28	E-28	100
29	E-29	100
30	E-30	100
31	E-31	100

The table 4.5 showes that the largest score in the experimental class is 100. While the lowest score in the experimental class is 80.

Table 4.6

List of Control Class Learning Outcomes

No	CODE	SCORE
1	C-01	65
2	C-02	64
3	C-03	79
4	C-04	66
5	C-05	70
6	C-06	81
7	C-07	74
8	C-08	76
9	C-09	75
10	C-10	73
11	C-11	82
12	C-12	64
13	C-13	81
14	C-14	81

15	C-15	71
16	C-16	65
17	C-17	73
18	C-18	77
19	C-19	77
20	C-20	70
21	C-21	84
22	C-22	67
23	C-23	62
24	C-24	82
25	C-25	71
26	C-26	71
27	C-27	65
28	C-28	82
29	C-29	70
30	C-30	73
31	C-31	72

The table 4.6 showes that the largest score in the experimental class is 84. While the lowest score in the experimental class is 62.

Data Analysis

Initial Analysis

Normality Test

Based on the results of the study, the study tested the normality of the test group using the pretest test scores. After the researcher knows the pretest score, the researcher makes a frequency distribution of the pretest test scores with the steps as in attachments 14a and 14b:

Table 4.7

Normality Pre-Test Results

No.	Class	X^2_{count}	X^2_{table}	Conclusion
1.	Control	9,743888	11,07	Normal
2.	Experiment	2,46011	11,073	Normal

From the table 4.7, it is known that x^2_{count} of the two samples is less than x^2_{table} so that Ho is accepted. This means that the two samples, namely the learning outcomes of the experimental class and the control class, are normally distributed.

Homogeneity Test

After being tested for normality, the data on the results of the two classes were tested for homogeneity. This aims to determine whether the two data have the same variance or not. The statistical hypothesis homogeneity test is as follows:

$H_o : \sigma_1 = \sigma$

H

The test used is the F test, the test criteria are if $F_{count} < F_{table}$, thus, Ho is accepted with a significance level of 5%.

Based on the calculations in appendix 15, it is known that the results of the final stage of homogeneity test calculations are as follows:

Table 4.8

Homogeneity Test Results

Class	Control	Experiment
Total Score	2108	2128
N	31	31
Mean	68.00	65.42
Variace	41.27	42.72
F_{count}	1.035	
F_{table}	2.38	

From the table 4.8, it is known that the F_{count} of the two samples is less than F_{table} so that Ho is accepted. This means that the two samples, namely the experimental class and control class learning outcomes data have the same variance or the data of the two samples is homogeneous.

Mean Similarity Test

By looking at the two means of students' learning outcomes, this is done to find out whether the experimental class and the control class have the same average. The test uses the t-test formula (independent sample t-test) with the following hypothesis:

$H_o : \mu_1 \leq \mu_2$

$H_1 : \mu_1 > \mu_2$

Where :

μ_1 = learning outcomes of experimental class students taught using blended learning method

μ_2 = learning outcomes of control class students taught using conventional methods.

The variance is the same, so the formula used is:

$$t = \frac{\overline{X_1} - \overline{X_2}}{s\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Where,

$$s = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

And with the test criteria: if $t_{count} \geq t_{table}$ with dk = $n_1 + n_2 - 2$ and a significance level of 5%, then H_0 is rejected. Based on the calculations in appendix 18, it is known that the results of the t-test calculations are as follows:

Table 4.9

Independent T-Test Results

Class	Control	Experiment
Total Score	2108	2128
N	31	31
$\overline{X}$	68,00	65,42
Variance	41,27	42,72
Standard deviation	6,42	6,54

t_{count}	-1,568
Df	60
t_{table}	1,67

Because t is in the H_0 acceptance region, it can be concluded that there is no difference in the mean of the two groups.

We get t_{count} = -1.568 and $t_{0.05;60}$ = 1.67. Because -1.568 < 1.67 then H_0 is accepted or H_1 is rejected. This shows that the average learning outcomes of students in the experimental class and the average learning outcomes of students in the control class are identical.

Final Analysis

Normality Test

Based on the results of the study, the study tested the normality of the test group using the pretest test scores. After the researcher knows the pretest score, the researcher makes a frequency distribution of the pretest test scores with the steps as in attachments 16a and 16b:

Table 4.10

Normality Post-Test Results

No.	Class	X^2_{count}	X^2_{table}	Conclusion
1.	Control	9,990955	11,07	Normal
2.	Experiment	-1749,47	11,073	Normal

From the table 4.10, it is known that x^2_{count} of the two samples is less than x^2_{table} so that Ho is accepted. This means that the two samples, namely the learning outcomes of the experimental class and the control class, are normally distributed.

Homogeneity Test

After being tested for normality, the data on the results of the two classes were tested for homogeneity. This aims to determine whether the two data have the same variance or not. The statistical hypothesis homogeneity test is as follows:

$$H_o : \sigma_1^2 = \sigma_2^2$$
$$H_A : \sigma_1^2 \neq \sigma_2^2$$

The test used is the F test, the test criteria are if $F_{count} < F_{table}$, thus, Ho is accepted with a significance level of 5%.

Based on the calculations in appendix 17, it is known that the results of the final stage of homogeneity test calculations are as follows:

Table 4.11

Homogeneity Test Results of Post-test

Class	Control	Experiment
Total Score	2263	2990
N	31	31
Mean	73.00	96,45
Variace	39.93	41,29
F_{count}	0.786	
F_{table}	2.38	

From the table 4.11, it is known that the F_{count} (0.786) of the two samples is less than F_{table} (2.38) so that Ho is accepted. This means that the two samples, namely the experimental class and control class learning outcomes data have the same variance or the data of the two samples is homogeneous.

The Hypothesis Test

By looking at the two means of students' learning outcomes, this is done to find out whether the experimental class students' learning outcomes are better than are the control class students' learning outcomes. The test uses the t-test formula (independent sample t-test) with the following hypothesis:

$H_o : \mu_1 \leq \mu_2$

$H_1 : \mu_1 > \mu_2$

Where :

μ_1 = learning outcomes of experimental class students taught using blended learning method

μ_2 = learning outcomes of control class students taught using conventional methods.

The variance is the same, so the formula used is:

$$t = \frac{\overline{X_1} - \overline{X_2}}{s\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Where,

$$s = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

And with the test criteria: if $t_{count} \geq t_{table}$ with dk = $n_1 + n_2 - 2$ and a significance level of 5%, then H_0 is rejected. Based on the calculations in appendix 19, it is known that the results of the t-test calculations are as follows:

Table 4.12

Independent T-Test Results

Class	Control	Experiment
Total Score	2263	2128
N	31	31
$\overline{X}$	73	97,74
Variance	39,93	42,72
Standard deviation	6,32	6,54
t_{count}	15,29066	
Df	60	
t_{table}	1,67	

Because t_{count} is in the H_0 rejection area, it can be concluded that there is the mean difference of the two groups. We get t_{count} = 15,29066 and $t_{0.05;60}$ = 1.67. Because 15,29066 < 1.67 then H_0 is rejected or H_1 is accepted. This shows that the experimental class students' learning outcomes are better than are the control class students' learning outcomes. The results of the statistical calculation of the mean difference test show that the implementation of blended learning method is effective in improving English reading skill in recount text of eighth grade students of MTs Fatahillah Ngaliyan in academic year of 2021/2022.

CHAPTER V

CONCLUSION AND SUGGESTION

Conclusion

Based on the results of the data analysis of the similarity test of the two averages in the English learning outcomes of the two classes, the experimental class and the control class after being given different treatments, it was obtained that t_{count} = 15.29066 and t_{table} = 1.67 at = 5% df = 60 obtained $t_{0.05;60}$ = 1.67 because t_{count} = 15.29066 > $t_{0.05;60}$ = 1.67 then H_0 is rejected or then H_1 is accepted meaning that the average the average English reading skill in recount text of students in the experimental class and the average English reading skill in recount text of students in the control class are different. This shows that the experimental class students' learning outcomes (97.74) are better than are the control class students' learning outcomes (73). Thus, it can be concluded that there are differences in students' mean learning outcomes of control class at MTs Fatahillah Bringin, Ngaliyan District, Semarang City. This means that the use of the blended learning method is effective in improving the English learning outcomes of eighth grade students at MTs Fatahillah Bringin, Ngaliyan District, Semarang City.

Suggestion

To improve the quality of learning, especially English subjects, there are several suggestions that the author feels need to be considered in learning English, including:

Teachers should apply the blended learning method as an interesting and fun way or learning strategy. So in its implementation, this method needs to be supported by adequate learning tools, such as lesson plans and textbooks that are in accordance with the material being taught.

Students are expected to be active, critical, and creative, because the benchmark for assessing learning outcomes starts from the process until the completion of learning. Students are expected to be able to master the English taught by the teacher. Students are expected to be able to apply mastery of English.

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Lamp: -
Hal : Mohon Ijin Riset
a.n. : Ahmad Nur Hakim
NIM : 1503046052

Yth.
Kepala MTS Fatahillah
di Semarang

Assalamu'alaikum Wr. Wb.,
Diberitahukan dengan hormat dalam rangka penulisan skripsi, atas nama mahasiswa:

Nama	:	Ahmad Nur Hakim
NIM	:	1503046052
Alamat	:	Desa Botosengon rt 01/04 Kec Dempet Kab Demak
Title	:	**The Effectiveness of Blended Learning Method in Improving Students' English Learning Outcomes (An Experimental Study at Eight Graders of MTS Fatahillah Ngaliyan in Academic Year of 2021/2022)**

Pembimbing:
Ibu Sayyidatul Fadhlilah, S.Pd.I, M.Pd

Sehubungan dengan hal tersebut mohon kiranya yang bersangkutan diberikan izin riset dan dukungan data dengan tema/judul skripsi sebagaimana tersebut di atas selama 15 hari, mulai tanggal 9 Mei 2022 sampai dengan tanggal 21 Mei 2022.
Demikian atas perhatian dan terkabulnya permohonan ini disampaikan terimakasih.
Wassalamu'alaikum Wr. Wb.

a.n. Dekan,
Wakil Dekan Bidang Akademik

Mahfud Junaedi

Appendix 2

Tembusan:
Dekan Fakultas Ilmu Tarbiyah dan Keguruan UIN Walisongo Semarang (sebagai laporan)

List of Experimental Class Students

No	Nama
1	Achsana Maswaya
2	Afif Murdiyanto
3	Ahmad Rafli Kurniawan
4	Andin Septya Amelia
5	Anisa Citra Silvia
6	Arsyadani Muhammad Ramadhan
7	Arya Rizki Pradana
8	Atha Rasyid Rizqi
9	Aulia Nuraini
10	Bagas Rafi Ardiyansah
11	Cahya Kembang Jagad
12	Diah Eka Putri R
13	Enjelina
14	Farah Anastasya
15	Fitria Nada
16	Fitria Permadani Santiago
17	Gyzella Martha Maulina
18	Ikhsan Akbar Musa Al Kadzim
19	Lailatuzzahro
20	Mita Ayu Azzahra
21	Muhammad Farel Wiratama
22	Nilna Hikmah Lailiyah
23	Novito Zidan Daiva
24	Nur Lailatun Hasanah
25	Rafa Radithya Ramadhani
26	Revan Aditya Pratama
27	Rifky Dhana Ramadhan
28	Tiara Cinta Pursada
29	Yahwa Malika Salsabila
30	Yuliana Putri Lestari
31	Zaenal Fanani

Appendix 3

List of Control Class Students

No	Nama
1	Alifa Saski Indarningtyas
2	Ari Dwi Prasetya
3	Aulia Fa'iqotul Insyiroh
4	Bisri Mustova
5	Candra Pratama
6	Dewi Ayu Marlina
7	Elviena Febriyani
8	Fariel Reza Permana
9	Fatikhatul Salma Widiatina
10	Hasna Maharani
11	Izazava Cindy Assshyfa
12	Keyla Sakura Dewi
13	Marsya Harpaselina Tanjung Syafana
14	Muhammad Syaputra
15	Muhammad Wahyudin
16	Muhsin Maulana Sodiq
17	Nadya Kusuma Wardani
18	Naufal Cheva Tudeandra
19	Nida Khoirun Najwa
20	Nurhidayatul Fitri
21	Rafa'ul Kaffi
22	Rakha Septiansyach Fazle Pratama
23	Rakha Zelda Firjatullah
24	Ramdhan Iqbal Adityo
25	Shakira Wanda Karima
26	Shofia Zahrotul Maghfiroh
27	Vannda Arief Kurniawan
28	Velisa
29	Zahrotul Mualifah
30	Zaky Nouval Dafala
31	Zisael Qothrunnada Achmad

Appendix 4

LESSON PLAN

School : MTS	Class/Semester: VIII/2	BC : 3.11 & 4.12
Subject : English	Time Allocation: 4X40 minutes	Meeting : 1
Material : Personal Recount Text; Giving and asking for information related to past personal experiences		

LEARNING OBJECTIVES

- To identify recount text about someone's personal experience
- To tell events, activities experienced chronologically
- To use flowcharts to learn storyline
- To complete a summary of the experience with sentences drawn from the text, with correct spelling and punctuation
- To writi short texts in handwriting about personal experiences dictated by the teacher
- To make short and simple texts about personal experiences in the past
- To present their respective texts with their friends, orally, with the correct speech and word stress

LEARNING ACTIVITIES

Media	Instrument	Source
• Whatsapp, Google classroom, Telegram, zoom, google form etc • Presentation Slides (ppt)	• Laptops, cellphones, tablets and etc	• Teacher and student books • Modules, teaching materials, internet and other relevant resources

Introduction	• The teacher greets and invites students to pray together (Religious) • The teacher checks the attendance of students (via WhatsApp group, Zoom, Google Classroom, Telegram or other online media)

	• The teacher conveys the objectives and benefits of learning about the topic to be taught • The teacher conveys an outline of the scope of the material and the learning steps
Main Activity	• Students are given motivation and guidance to see, observe, read and rewrite it. They are given impressions and reading material (via WhatsApp group, Zoom, Google Classroom, Telegram or other online media) related to the social function of Personal Recount Text; Giving and asking for information related to personal experiences in the past. (literacy) • The teacher provides an opportunity to identify as many things as possible that are not understood, starting from factual questions to hypothetical questions. This question should still be related to the material Social function of Personal Recount Text; Giving and asking for information related to personal experiences in the past. (HOTS) • Students are given the opportunity to discuss, collect information, re-present, and exchange information regarding the social function of Personal Recount Text; Giving and asking for information related to personal experiences in the past. (Collecting information and Problem solving) • Through WhatsApp groups, Zoom, Google Classroom, Telegram or other online media, students present their work and then respond to other students (Communication) • Teachers and students make conclusions about the things that have been learned related to the social function of Personal Recount Text; Giving and asking for information related to personal experiences in the past, Students are then given the opportunity to ask questions about things that have not been understood (Creativity)
Closing	• Teachers and students reflect on the learning experience • The teacher conveys the lesson plan at the next meeting and prays

ASSESSMENT

Assessment of this material can be carried out according to the needs of the teacher, namely from observation of attitudes, knowledge tests (in the form of written tests) and presentations of performance/work or projects with an assessment rubric as skill values.

Appendix 5

LESSON PLAN

School : MTS	Class/Semester: VIII/2	BC : 3.11 & 4.12
Subject : English	Time Allocation: 4X40 minutes	Meeting : 2
Material : Personal Recount Text; Giving and asking for information related to past personal experiences		

LEARNING OBJECTIVES

- To identifying recount text about someone's personal experience
- To tell events, activities experienced chronologically
- To use flowcharts to learn storyline
- To complete a summary of the experience with sentences drawn from the text, with correct spelling and punctuation
- To write short texts in handwriting about personal experiences dictated by the teacher
- To make short and simple texts about personal experiences in the past
- To present their respective texts with their friends, orally, with the correct speech and word stress

LEARNING ACTIVITIES

Media	Instrument	Source
• Whatsapp, Google classroom, Telegram, zoom, google form etc • Presentation Slides (ppt)	• Laptops, cellphones, tablets and etc	• Teacher and student books • Modules, teaching materials, internet and other relevant resources

Introduction	• The teacher greets and invites students to pray together (Religious) • The teacher checks the attendance of students (via WhatsApp group, Zoom, Google Classroom, Telegram or other online media)

	• The teacher conveys the objectives and benefits of learning about the topic to be taught • The teacher conveys an outline of the scope of the material and the learning steps
Main Activity	• Students are given motivation and guidance to see, observe, read and rewrite it. They are given impressions and reading material (via WhatsApp group, Zoom, Google Classroom, Telegram or other online media) related to Personal Recount Text Structure material; Giving and asking for information related to personal experiences in the past. (literacy) • The teacher provides an opportunity to identify as many things as possible that are not understood, starting from factual questions to hypothetical questions. This question should still be related to the Personal Recount Text Structure material; Giving and asking for information related to personal experiences in the past. (HOTS) • Students are given the opportunity to discuss, collect information, re-present, and exchange information about the structure of the Personal Recount Text; Giving and asking for information related to personal experiences in the past (Collecting information and Problem solving) • Through WhatsApp groups, Zoom, Google Classroom, Telegram or other online media, students present their work and then respond to other students (Communication) • Teachers and students make conclusions about the things that have been learned related to the Personal Recount Text Structure; Giving and asking for information related to personal experiences in the past, students are then given the opportunity to ask questions • return to things that have not been understood (Creativity)
Closing	• Teachers and students reflect on the learning experience • The teacher conveys the lesson plan at the next meeting and prays

ASSESSMENT

Assessment of this material can be carried out according to the needs of the teacher, namely from observation of attitudes, knowledge tests (in the form of written tests) and presentations of performance / work or projects with an assessment rubric as skill scores.

Appendix 6

LESSON PLAN

School : MTS	Class/Semester: VIII/2	BC : 3.11 & 4.12
Subject : English	Time Allocation: 4X40 minutes	Meeting : 3
Material : Personal Recount Text; Giving and asking for information related to past personal experiences		

LEARNING OBJECTIVES

- To identifying recount text about someone's personal experience
- To tell events, activities experienced chronologically
- To use flowcharts to learn storyline
- To complete a summary of the experience with sentences drawn from the text, with correct spelling and punctuation
- To write short texts in handwriting about personal experiences dictated by the teacher
- To make short and simple texts about personal experiences in the past
- To present their respective texts with their friends, orally, with the correct speech and word stress

LEARNING ACTIVITIES

Media	Instrument	Source
• Whatsapp, Google classroom, Telegram, zoom, google form etc • Presentation Slides (ppt)	• Laptops, cellphones, tablets and etc	• Teacher and student books • Modules, teaching materials, internet and other relevant resources

Introduction	• The teacher greets and invites students to pray together (Religious) • The teacher checks the attendance of students (via WhatsApp group, Zoom, Google Classroom, Telegram or other online media)

	• The teacher conveys the objectives and benefits of learning about the topic to be taught • The teacher conveys an outline of the scope of the material and the learning steps
Main Activity	• Students are given motivation and guidance to see, observe, read and rewrite it. They are given impressions and reading material (via WhatsApp group, Zoom, Google Classroom, Telegram or other online media) related to declarative and interrogative sentences in Simple Past tense and Adverbs and prepositional phrases of time indicators: yesterday, last month, an hour ago, and etc. (literacy) • The teacher provides an opportunity to identify as many things as possible that are not understood, starting from factual questions to hypothetical questions. This question must still be related to the material of declarative and interrogative sentences in the Simple Past tense and Adverbs and prepositional phrases of time: yesterday, last month, an hour ago, and so on. (HOTS) • Learners are given the opportunity to discuss, collect information, re-present, and exchange information about declarative and interrogative sentences in Simple Past tenses and Adverbs and prepositional phrases indicating time: yesterday, last month, an hour ago, and so on. (Collecting information and problem solving) • Through WhatsApp groups, Zoom, Google Classroom, Telegram or other online media, students present their work and then respond to other students (Communication) • Teachers and students make conclusions about the things that have been learned related to declarative and interrogative sentences in the Simple Past tense and Adverbs and prepositional phrases indicating time: yesterday, last month, an hour ago, and so on. Students are then given the opportunity to ask again things that have not been understood (Creativity)
Closing	• Teachers and students reflect on the learning experience • The teacher conveys the lesson plan at the next meeting and prays

ASSESSMENT

Assessment of this material can be carried out according to the needs of the teacher, namely from observation of attitudes, knowledge tests (in the form of written tests) and presentations of performance / work or projects with an assessment rubric as skill scores.

Appendix 7

LESSON PLAN

School : MTS	Class/Semester: VIII/2	BC : 3.11 & 4.12
Subject : English	Time Allocation: 4X40 minutes	Meeting : 3
Material : Personal Recount Text; Giving and asking for information related to past personal experiences		

LEARNING OBJECTIVES

- To identifying recount text about someone's personal experience
- To tell events, activities experienced chronologically
- To use flowcharts to learn storyline
- To complete a summary of the experience with sentences drawn from the text, with correct spelling and punctuation
- To write short texts in handwriting about personal experiences dictated by the teacher
- To make short and simple texts about personal experiences in the past
- To present their respective texts with their friends, orally, with the correct speech and word stress

LEARNING ACTIVITIES

Media	Instrument	Source
• Whatsapp, Google classroom, Telegram, zoom, google form etc • Presentation Slides (ppt)	• Laptops, cellphones, tablets and etc	• Teacher and student books • Modules, teaching materials, internet and other relevant resources

Introduction	• The teacher greets and invites students to pray together (Religious) • The teacher checks the attendance of students (via WhatsApp group, Zoom, Google Classroom, Telegram or other online media)

	• The teacher conveys the objectives and benefits of learning about the topic to be taught • The teacher conveys an outline of the scope of the material and the learning steps
Main Activity	• Students are given motivation and guidance to see, observe, read and rewrite it. They are given impressions and reading material (via WhatsApp group, Zoom, Google Classroom, Telegram or other online media) related to time-connecting Adverbs: first, then, after that, before, at last, finally, and so on. (literacy) • The teacher provides an opportunity to identify as many things as possible that are not understood, starting from factual questions to hypothetical questions. • This question should still be related to the subject matter of adverbs of time: first, then, after that, before, at last, finally, and so on. (HOTS) • Students are given the opportunity to discuss, collect information, re-present, and exchange information about adverbs of time: first, then, after that, before, at last, finally, and so on. (Collecting information and Problem solving) • Through WhatsApp groups, Zoom, Google Classroom, Telegram or other online media, students present their work and then respond to other students (Communication) • Teachers and students make conclusions about the things that have been learned related to adverbs of time: first, then, after that, before, at last, finally, and so on. Students are then given the opportunity to ask questions about things that have not been understood (creativity)
Closing	• Teachers and students reflect on the learning experience • The teacher conveys the lesson plan at the next meeting and prays

ASSESSMENT

Assessment of this material can be carried out according to the needs of the teacher, namely from observation of attitudes, knowledge tests (in the

form of written tests) and presentations of performance / work or projects with an assessment rubric as skill scores.

Appendix 8

Recount Text

A recount is a piece of writing that tells events in a chronological sequence. A recount text is similar to a narrative text. The story may be an event or a situation that place on a particular day. The order of the events is very important. A recount can entertain and/or inform. A recount retells past events or experiences in the order they happened.

Communicative Purpose: to retell something happen in the past; to reconstruct past experiences by retelling events in the order in which they have occurred.

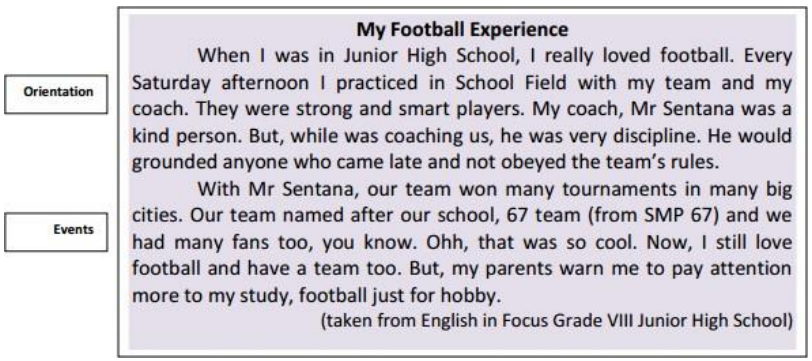
Recounts	Text Organization
Personal recounts	• Orientation introduces who were involved in the story, when and where the story happened. • Events tell what happened in a chronological order. • Re-orientation (optional) provides the conclusion of the experience; writer‟s comment about the experience.
Factual recounts	• Orientation introduces who were involved in the story, when and where the story happened. • Events tell what happened in a chronological order.

Examples of recount texts: incident reports, newspaper reports, police reports, articles, letters, journals, historical accounts, diary entries

Language Feature	Example
Noun	• man, journey, town, etc.

Pronouns	• it, he, him, his, etc
Action verbs	• wanted, decided, ate, etc.
Past tenses	• A rich man wanted to make a journey to another town.
Time conjunction	• before, finally, etc.
Adverbs	• cheerfully, quickly, etc.
Adverbs of phrases	• a few days ago, at the end of the journey, etc.
Adjectives	• old, clever, light, heavy, etc.

Example



Appendix 9

Trial Assessment Test

Subjects : English
Subject matter : Recount text
Class VIII
Total item : 22 items
Time : 35 minutes

Put a cross (x) on the letters a, b, c or d in front of the most correct answer!

Text 1 about a Holiday to Yogyakarta

On Wednesday, my students and I went to Yogyakarta. We stayed at Dirgahayu Hotel which is not far from Malioboro.
On Thursday, we visited the temples in Prambanan. There are three big temples, the Brahmana, Syiwa and Wisnu temples. They are really amazing. We visited only Brahmana and Syiwa temples, because Wisnu temple is being renovated.
On Friday morning we went to Yogya Kraton. We spent about two hours there. We were lucky because we were led by a smart and friendly guide. Then we continued our journey to Borobudur. We arrived there at four p.m. At 5 p.m. we heard the announcement that Borobudur gate would be closed. In the evening we left for Jakarta by wisata bus.

1. The text above mainly discusses about…..

a. the writer's trip to Yogyakarta
b. the writer's first visit to Prambanan
c. the writer's impression about the guide
d. the writer's experience at Yogya Kraton

2. The text is written in the form of a……..

a. recount
b. narrative
c. report
d. descriptive

3. The purpose of the text is to……

a. tell past events
b. entertain readers
c. describe the smugglers
d. inform readers about events of the day

4. What are the big temples in Prambanan?

a. paria, brahmana, and temples
b. brahmana, syiwa, and wisnu temples
c. wisnu, syiwa, and borobudur temples
d. borobudur, syiwa, and brahmana temples

5. When did they go home?

a. On Saturday morning
b. On Friday evening
c. On Thursday evening
d. On Friday afternoon

6. Why did they only visit Brahmana and Syiwa temples?

a. because there was no wisnu temple
b. because wisnu temple was amazing
c. because wisnu temple was too small
d. because wisnu temple was being repaired

Text 2 about a Holiday to the Zoo

Yesterday my family and I went to the zoo to see the elephant. When we got to the zoo, we went to the shop to buy some food to give to the animals.

After getting the food, we went to the nocturnal house where we saw birds and reptiles which only come out at night.

Before having lunch, we went for a ride on the elephant. It was a thrill to ride it. Dad fell off when he let go off the rope, but he was ok.

During the lunch we fed some birds in the park. In the afternoon we saw the animals being fed. When we returned home we were very tired but happy. It was because we had so much fun activities at many places at the zoo.

7. What happened to the writer's dad when he rode an elephant?

a. He felt a thrill
b. He felt fun
c. He fell off
d. He failed

8. Why did the writer and his family feel very tired after having a trip to the zoo?

a. They had to visit many places in the zoo
b. They took a long time to reach the zoo area
c. They had to feed a lot of animals in the zoo
d. They had no time to take a rest in the zoo

9. … our family felt tired after visiting the zoo, we were still happy.

a. Since

b. Because

c. Although

d. Nevertheless

Text 3 about a Picnic

Last weekend I and my classmates went to the countryside to have a picnic. Before leaving, we made some sandwiches for lunch. We left quite early to avoid the traffic jam.

After driving for two hours, we arrived at a very nice place. It was near a river with some big trees around it. The driver parked the car under the tree. Seeing the clear an cool water of the river, my friends and I decided to swim. After having lunch together, we went around the area to enjoy the scenery. We saw some beautiful birds and butterflies.

After walking for about an hour, we decided to return to the car and go home. Unfortunately, we cloud not start up the car. Finally after sometime, we cloud make the car start up by pushing it. We were happy although we felt a bit tired when we got home.

10. What is the main idea of the second paragraph?

a. The writer made sandwiches for lunch
b. The writer did some fun activities during their picnic
c. After doing some activities, the writer went home by car
d. Last weekend the writer prepared to have a picnic in the countryside

11. Why did the writer and his friends decide to swim in the river?

a. They felt hot after having lunch
b. They felt tired after having a walk
c. The water was cool and clear
d. It was a tiring day

12. Because of the trouble they had at the end of their picnic, they probably ….

a. Got home a bit late
b. Decided to swim again
c. Had to spend the night there
d. Decided not to have a picnic again

Text 4 about a Trip

Last April, John took a trip to Las Vegas, Nevada. Las Vegas is a popular destination in the western portion of the United States. The town is most popular for its casinos, hotels, and exciting nightlife.
In downtown Las Vegas, John spent a lot of time on The Strip, which is a 2.5 mile stretch of shopping, entertainment venues, luxury hotels, and fine dining experiences. This is probably the most commonly visited tourist area in the city. The Strip at night looks especially

beautiful. All of the buildings light up with bright, neon, eye-catching signs to attract visitor attention.

A stay in Las Vegas can feel similar to a visit to many popular cities worldwide. Many of the hotels have miniature versions of important international sites and monuments. These famous landmarks include the Eiffel Tower, Venice, and even ancient Rome.

One day, John took a side trip outside of the city to visit the Grand Canyon, one of the Seven Wonders of the Natural World. The canyon offers a breathtaking view of Nevada's ridges and natural landscape. John especially liked the canyon because it was removed from all of the noise and movement in downtown Las Vegas.

John had a great time during his trip to Las Vegas. He did not win a lot of money in the casinos. However, he managed to see a lot of amazing sites during his visit to this city that never sleeps.

13. When did John travel to Las Vegas?

a. Last weekend
b. Last summer
c. Last spring
d. Yesterday

14. What is an activity that a tourist cannot do on The Strip?

a. Eat
b. Visit the Grand Canyon
c. Stay overnight

d. Shop

15. Which best describes the purpose of the Las Vegas Strip?

a. It is a 2.5 mile stretch.
b. It keeps tourists safe.
c. It offers a lot of activities for tourists.
d. There are too many neon lights.

16. Explain why John liked his visit to the Grand Canyon.

a. The setting was very different from downtown Las Vegas.
b. John does not enjoy spending time in cities.
c. The Grand Canyon offers a breathtaking view.
d. It is one of the Seven Natural Wonders of the World.

17. What does it mean that Las Vegas is a "city that never sleeps?"

a. A lot of people here have sleep disorders.
b. There is too much noise here for people to sleep.
c. The neon lights keep people awake at night.
d. Las Vegas offers exciting activities at all hours.

Text 5 about Visiting Liberty Statue

When Claire visited the Statue of Liberty for the first time, she instantly admired it as a symbol of freedom. Claire made sure to make reservations before her visit because only 240 people are permitted to climb the staircase to the top of the statue every day. After climbing almost 400 stairs, Claire received spectacular views of the city from the statue's crown.

During her visit, Claire learned that the Statue of Liberty was not always the color that it is now. She found out that because the statue's exterior is made of copper, the statue oxidized over time, giving it the greenish appearance it has in present day. When it was first constructed, the statue was the same color as a shiny penny!

After touring the Statue of Liberty, Claire spent the rest of the day in New York City visiting other important monuments and historic landmarks. Claire left New York hoping to have had the time to explore more sites, but she can't wait to return to the city in the future.

18. How many people are permitted to climb the statue's stairs per day?

a. 150
b. 400
c. 240
d. 100

19. From which part of the statue did Claire receive spectacular views of the city?

a. The mouth
b. The crown
c. The eyes
d. The nose

20. Why has the Statue of Liberty changed color over time?

a. It was painted green during restorations.
b. New York's poor air quality has eroded the statue.
c. Its copper exterior oxidized.
d. The statue is poorly maintained by the city.

Text 6 about a Summer Holiday

I just returned from the greatest summer vacation! It was so fantastic, I never wanted it to end. I spent eight days in Paris, France. My best friends, Henry and Steve, went with me. We had a beautiful hotel room in the Latin Quarter, and it wasn't even expensive. We had a balcony with a wonderful view.

We visited many famous tourist places. My favorite was the Louvre, a well-known museum. I was always interested in art, so that was a special treat for me. The museum is so huge, you could spend weeks there. Henry got tired walking around the museum and said "Enough! I need to take a break and rest."

We took lots of breaks and sat in cafes along the river Seine. The French food we ate was delicious. The wines were tasty, too. Steve's favorite part of the vacation was the hotel breakfast. He said he would be happy if he could eat croissants like those forever. We had so much fun that we're already talking about our next vacation.

21. What city did they go to for their summer vacation?

a. Paris
b. Lyon
c. Louvre
d. Latin

22. How long was the summer vacation?

a. Eight weeks
b. Eight days
c. Two weeks
d. One week

Appendix 10a

First Difference Analysis

No	Kode	No Soal									
		1	2	3	4	5	6	7	8	9	10
1	UC-1	1	1	1	1	1	1	1	1	0	1
2	UC-2	0	1	0	1	1	1	1	1	0	1
3	UC-3	1	1	0	1	1	0	0	1	1	1
4	UC-4	0	0	0	0	1	1	0	0	0	1
5	UC-5	1	1	1	1	1	0	1	0	0	1
6	UC-6	1	0	0	0	1	1	1	1	0	1
7	UC-7	1	1	0	1	1	1	1	1	1	1
8	UC-8	0	0	0	1	1	1	0	1	1	1
9	UC-9	1	1	0	0	1	0	1	1	1	1
10	UC-10	1	1	0	0	0	1	0	1	0	1
11	UC-11	1	1	1	1	0	0	1	1	0	1
12	UC-12	0	0	1	1	1	0	1	1	1	1
13	UC-13	1	1	0	0	1	0	0	0	1	1
14	UC-14	1	1	1	1	1	0	0	1	0	1
15	UC-15	1	1	1	1	0	1	0	1	0	1
16	UC-16	0	1	0	0	0	1	0	0	0	1
17	UC-17	1	1	1	1	0	0	0	1	0	1
18	UC-18	1	1	1	1	1	1	0	1	0	1
19	UC-19	1	1	1	1	1	0	0	0	0	1
20	UC-20	0	0	1	0	1	1	0	1	1	1
21	UC-21	1	1	1	1	1	1	0	1	0	1
22	UC-22	0	1	1	0	1	1	1	0	0	0
23	UC-23	0	1	1	0	1	0	1	0	0	0
24	UC-24	0	0	1	0	0	1	0	0	0	1
25	UC-25	1	1	1	1	1	1	1	1	1	1
26	UC-26	0	1	1	0	1	0	1	1	1	1
27	UC-27	0	0	1	0	0	0	0	0	0	0
28	UC-28	0	0	1	1	1	0	0	1	0	1
29	UC-29	1	1	0	1	1	1	1	0	1	1
30	UC-30	0	0	1	0	0	1	1	0	0	0
31	UC -31	0	0	1	0	0	1	1	0	0	0
DAYA PEMBEDA	BA	11,00	11,00	6,00	10,00	12,00	8,00	8,00	12,00	6,00	15,00
	BB	6,00	10,00	14,00	7,00	10,00	10,00	7,00	7,00	4,00	11,00
	JA	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00
	JB	16,00	16,00	16,00	16,00	16,00	16,00	16,00	16,00	16,00	16,00
	D	0,36	0,11	-0,48	0,23	0,18	-0,09	0,10	0,36	0,15	0,31
	Kriteria	Cukup	Jelek	jelek	Cukup	Jelek	jelek	Jelek	Cukup	Jelek	Cukup
	KET..	Dterima	Dterima	Dbuang	Dterima	Dterima	Dbuang	Dbuang	Dterima	Dterima	Dbuang

11	12	13	14	15	16	17	18	19	20	21
1	1	1	0	1	1	1	0	1	1	0
1	1	1	0	1	0	1	1	1	1	1
1	1	1	0	0	0	1	0	1	1	1
0	0	1	0	0	0	1	1	1	1	1
1	1	1	0	1	1	1	1	1	1	1
1	1	0	0	1	0	1	1	1	0	0
1	1	1	0	0	0	1	1	1	1	1
1	1	1	1	1	0	1	0	1	1	1
1	1	1	1	1	1	1	1	1	1	1
1	1	1	0	1	0	0	1	1	1	1
0	0	0	1	1	0	0	0	1	1	1
0	0	1	0	1	0	1	1	0	0	0
0	1	1	0	1	1	1	1	1	1	1
1	1	1	0	1	1	1	1	1	1	0
1	1	1	0	1	0	1	1	1	1	1
1	0	1	1	1	1	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1
1	0	1	0	1	0	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1
0	1	1	0	1	0	1	1	1	1	1
0	0	1	1	1	0	1	1	1	1	1
1	1	1	1	1	0	1	1	1	0	0
1	1	0	0	1	1	1	0	0	1	0
1	1	1	0	1	1	1	1	1	1	1
1	1	1	1	0	0	0	1	1	1	1
0	1	1	1	1	1	1	1	1	1	1
1	1	0	1	1	1	1	0	1	0	1
1	1	1	0	1	1	1	1	1	1	1
0	0	0	1	1	1	1	0	1	0	0
0	0	0	1	1	1	1	0	1	0	0

11,00	12,00	13,00	3,00	12,00	5,00	13,00	11,00	14,00	13,00	11,00
11,00	11,00	12,00	8,00	15,00	8,00	15,00	12,00	15,00	12,00	12,00
15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00
16,00	16,00	16,00	16,00	16,00	16,00	16,00	16,00	16,00	16,00	16,00
0,05	0,11	0,12	-0,30	-0,14	-0,17	-0,07	-0,02	0,00	0,12	-0,02
Jelek	Jelek	Jelek	jelek	jelek	jelek	jelek	jelek	jelek	Jelek	jelek
Dterima	Dterima	Dterima	Dbuang	Dterima	Dbuang	Dbuang	Dterima	Dbuang	Dterima	Dterima

22	23	24	25	26	27	28	29	30
1	1	0	0	0	1	0	0	1
1	1	1	0	1	1	0	1	1
1	1	0	1	0	0	0	1	1
1	1	1	1	1	1	1	1	1
1	1	0	0	1	1	0	1	1
1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1
1	1	1	0	0	1	1	1	1
1	1	0	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1
1	1	0	0	1	1	1	1	1
1	1	0	1	1	1	1	1	1
1	1	1	0	1	1	1	1	1
1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1
1	1	1	0	1	0	1	1	1
1	1	0	0	1	0	0	0	1
1	1	1	0	1	0	1	1	1
1	1	0	0	1	0	0	0	1
1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	0	1	0
0	1	1	0	1	1	0	1	1
1	1	1	1	1	1	1	1	1
0	0	0	0	0	1	1	1	0
0	0	0	0	0	1	1	1	0
15,00	15,00	11,00	11,00	12,00	14,00	11,00	14,00	15,00
13,00	14,00	10,00	7,00	14,00	12,00	12,00	14,00	13,00
15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00
16,00	16,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00
0,19	0,13	0,07	0,27	-0,13	0,13	-0,07	0,00	0,13
Jelek	Jelek	Jelek	Cukup	jelek	Jelek	jelek	Jelek	Jelek
Dterima	Dterima	Dterima	Dterima	Dterima	Dbuang	Dbuang	Dbuang	Dterima

31	32	33	34	35	36	37	38	39	40	Y	Y^2
0	1	1	1	1	1	0	0	1	1	28	784
0	1	1	0	1	1	0	0	1	0	28	784
1	1	1	0	1	1	1	1	1	0	27	729
1	1	0	0	1	0	0	1	1	0	23	529
0	1	1	1	1	1	0	0	1	1	30	900
1	0	1	0	1	0	0	1	1	0	26	676
1	1	1	0	1	1	1	1	1	0	34	1156
1	1	1	0	1	1	1	1	1	0	32	1024
1	1	1	0	1	0	1	1	1	0	34	1156
1	1	1	0	0	0	0	1	0	0	26	676
1	1	0	1	0	1	0	1	0	1	27	729
0	0	0	1	1	1	1	0	1	1	24	576
1	1	0	0	1	0	1	1	1	0	28	784
1	1	1	1	1	1	0	1	1	1	34	1156
1	1	1	1	1	1	0	1	1	1	34	1156
0	1	1	0	1	0	0	0	1	0	24	576
1	1	1	1	1	1	0	1	1	1	32	1024
0	1	1	1	1	1	0	0	1	1	31	961
1	1	1	1	1	1	0	1	1	1	33	1089
1	1	1	1	1	0	1	1	1	1	33	1089
0	1	0	1	1	1	0	0	1	1	29	841
0	1	0	1	1	0	0	0	1	1	22	484
0	0	1	1	1	0	0	0	1	1	24	576
0	1	1	1	1	0	0	0	1	1	19	361
1	1	1	1	1	1	1	1	1	1	39	1521
1	1	1	1	0	0	1	1	0	1	31	961
1	1	0	1	1	0	0	1	1	1	25	625
0	0	1	1	1	1	0	0	1	1	25	625
1	1	1	0	1	1	1	1	1	0	35	1225
0	0	0	1	1	0	0	0	1	1	15	225
0	0	0	1	1	0	0	0	1	1	15	225
Sedang	Mudah	Mudah	Sedang	Mudah	Sedang	Sedang	Sedang	Mudah	Sedang		
11,00	13,00	11,00	6,00	13,00	10,00	6,00	11,00	13,00	6,00		
7,00	12,00	11,00	14,00	15,00	7,00	4,00	7,00	15,00	14,00		
15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00		
15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00		
0,27	0,07	0,00	-0,53	-0,13	0,20	0,13	0,27	-0,13	-0,53		
Cukup	Jelek	Jelek	jelek	jelek	Jelek	Jelek	Cukup	jelek	jelek		
Dterima	Dterima	Dterima	Dbuang	Dbuang	Dterima	Dterima	Dterima	Dbuang	Dbuang		

Appendix 10b

Analysis of the Second Difference

No	Kode	No Soal										
		1	2	4	5	8	9	10	11	12	13	15
1	UC-1	1	1	1	1	1	1	1	1	1	1	0
2	UC-2	1	0	1	1	1	1	1	1	1	1	1
3	UC-3	1	1	1	1	1	1	1	1	1	1	1
4	UC-4	1	1	1	1	1	1	1	1	1	1	1
5	UC-5	1	1	1	1	1	1	1	1	1	1	1
6	UC-6	1	1	1	1	1	1	1	1	1	1	1
7	UC-7	1	1	1	1	1	1	1	1	1	1	1
8	UC-8	1	1	1	1	1	1	1	1	1	1	1
9	UC-9	1	1	1	1	1	1	1	1	1	1	1
10	UC-10	1	1	1	1	1	1	1	1	1	1	1
11	UC-11	1	0	1	1	1	1	1	1	1	1	1
12	UC-12	1	0	1	1	1	1	1	1	1	1	1
13	UC-13	1	1	1	1	1	1	1	1	1	1	1
14	UC-14	1	1	1	1	1	1	1	1	1	1	1
15	UC-15	1	1	1	1	1	1	1	0	1	1	1
16	UC-16	1	1	1	1	1	1	1	1	1	1	1
17	UC-17	1	1	1	1	1	1	1	1	1	1	1
18	UC-18	1	0	1	1	1	1	1	1	1	1	1
19	UC-19	1	1	1	1	1	1	1	1	1	1	1
20	UC-20	0	0	0	0	0	0	0	0	0	0	0
21	UC-21	1	1	1	1	1	1	1	1	1	1	1
22	UC-22	1	1	1	1	1	1	0	1	1	1	1
23	UC-23	1	0	1	1	1	1	1	1	1	1	1
24	UC-24	1	1	1	1	0	1	1	1	1	1	1
25	UC-25	1	1	1	1	1	1	1	1	1	1	1
26	UC-26	1	1	1	1	1	1	1	1	1	1	0
27	UC-27	1	0	1	0	1	1	1	1	1	1	1
28	UC-28	1	1	1	1	1	1	1	1	1	1	1
29	UC-29	1	1	1	1	1	1	1	1	1	1	0
30	UC-30	1	0	1	1	1	1	1	1	1	1	1
31	UC-31	1	1	1	1	1	1	1	1	1	0	1
DAYA PEMBEDA	BA	11,00	11,00	10,00	12,00	12,00	6,00	15,00	11,00	12,00	13,00	12,00
	BB	6,00	10,00	7,00	10,00	7,00	4,00	11,00	11,00	11,00	12,00	15,00
	JA	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00
	JB	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00
	D	0,33	0,07	0,20	0,13	0,33	0,13	0,27	0,00	0,07	0,07	-0,20
	Kriteria	Cukup	Jelek	Jelek	Jelek	Cukup	Jelek	Cukup	Jelek	Jelek	Jelek	Sangat jelek
	KET..	Dterima	Dterima	Dterima	Dterima	Dterima	Dterima	Dterima	Dterima	Dterima	Dterima	Dterima

18	20	21	24	25	31	32	33	36	37	38	Y	Y^2
0	0	1	1	1	1	1	1	1	0	0	17	289
1	1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	0	1	20	400
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	1	1	1	1	1	1	1	1	22	484
0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	0	1	21	441
1	1	1	1	1	1	1	1	0	1	1	20	400
1	1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	1	1	1	0	1	1	1	1	20	400
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	21	441
1	1	1	0	1	0	1	1	1	1	1	18	324
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	21	441
1	1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	1	1	1	1	1	1	1	1	21	441

11,00	11,00	11,00	11,00	10,00	12,00	12,00	6,00	15,00	11,00	12,00
12,00	12,00	6,00	10,00	7,00	10,00	7,00	4,00	11,00	11,00	11,00
15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00
15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00
-0,07	-0,07	0,33	0,07	0,20	0,13	0,33	0,13	0,27	0,00	0,07
Sangat jelek	Sangat jelek	Cukup	Jelek	Jelek	Jelek	Cukup	Jelek	Cukup	Jelek	Jelek
Dterima	Dterima	Dterima	Dterima	Dterima	Dterima	Dterima	Dterima	Dterima	Dterima	Dterima

Appendix 11a

First Difficulty Analysis

No	Kode	No Soal									
		1	2	3	4	5	6	7	8	9	10
1	UC-1	1	1	1	1	1	1	1	1	0	1
2	UC-2	0	1	0	1	1	1	1	1	0	1
3	UC-3	1	1	0	1	1	0	0	1	1	1
4	UC-4	0	0	0	0	1	1	0	0	0	1
5	UC-5	1	1	1	1	1	0	1	0	0	1
6	UC-6	1	0	0	0	1	1	1	1	0	1
7	UC-7	1	1	0	1	1	1	1	1	1	1
8	UC-8	0	0	0	1	1	1	0	1	1	1
9	UC-9	1	1	0	0	1	0	1	1	1	1
10	UC-10	1	1	0	0	0	1	0	1	0	1
11	UC-11	1	1	1	1	0	0	1	1	0	1
12	UC-12	0	0	1	1	1	0	1	1	1	1
13	UC-13	1	1	0	0	1	0	0	0	1	1
14	UC-14	1	1	1	1	1	0	0	1	0	1
15	UC-15	1	1	1	1	0	1	0	1	0	1
16	UC-16	0	1	0	0	0	1	0	0	0	1
17	UC-17	1	1	1	1	0	0	0	1	0	1
18	UC-18	1	1	1	1	1	1	0	1	0	1
19	UC-19	1	1	1	1	1	0	0	0	0	1
20	UC-20	0	0	1	0	1	1	0	1	1	1
21	UC-21	1	1	1	1	1	1	0	1	0	1
22	UC-22	0	1	1	0	1	1	1	0	0	0
23	UC-23	0	1	1	0	1	0	1	0	0	0
24	UC-24	0	0	1	0	0	1	0	0	0	1
25	UC-25	1	1	1	1	1	1	1	1	1	1
26	UC-26	0	1	1	0	1	0	1	1	1	1
27	UC-27	0	0	1	0	0	0	0	0	0	0
28	UC-28	0	0	1	1	1	0	0	1	0	1
29	UC-29	1	1	0	1	1	1	1	0	1	1
30	UC-30	0	0	1	0	0	1	1	0	0	0
31	UC -31	0	0	1	0	0	1	1	0	0	0
Tingkat Kesukaran	B	17	21	20	17	22	18	15	19	10	26
	JS	31	31	31	31	31	31	31	31	31	31
	P	0,548	0,677	0,64516	0,548	0,710	0,58065	0,484	0,613	0,323	0,83871
	KRITERIA	Sedang	Sedang	Sedang	Sedang	Mudah	Sedang	Sedang	Sedang	Sedang	Mudah

11	12	13	14	15	16	17	18	19	20	21	22	23
1	1	1	0	1	1	1	0	1	1	0	1	1
1	1	1	0	1	0	1	1	1	1	1	1	1
1	1	1	0	0	0	1	0	1	1	1	1	1
0	0	1	0	0	0	1	1	1	1	1	1	1
1	1	1	0	1	1	1	1	1	1	1	1	1
1	1	0	0	1	0	1	1	1	0	0	1	1
1	1	1	0	0	0	1	1	1	1	1	1	1
1	1	1	1	1	0	1	0	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	0	1	0	0	1	1	1	1	1	1
0	0	0	1	1	0	0	0	1	1	1	1	1
0	0	1	0	1	0	1	1	0	0	0	1	1
0	1	1	0	1	1	1	1	1	1	1	1	1
1	1	1	0	1	1	1	1	1	1	0	1	1
1	1	1	0	1	0	1	1	1	1	1	1	1
1	0	1	1	1	1	1	1	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1	1
1	0	1	0	1	0	1	1	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1	1
0	1	1	0	1	0	1	1	1	1	1	1	1
0	0	1	1	1	0	1	1	1	1	1	1	1
1	1	1	1	1	0	1	1	1	0	0	1	1
1	1	0	0	1	1	1	0	0	1	0	1	1
1	1	1	0	1	1	1	1	1	1	1	1	1
1	1	1	1	0	0	0	1	1	1	1	1	1
0	1	1	1	1	1	1	1	1	1	1	1	1
1	1	0	1	1	1	1	0	1	0	1	0	1
1	1	1	0	1	1	1	1	1	1	1	1	1
0	0	0	1	1	1	1	0	1	0	0	0	0
0	0	0	1	1	1	1	0	1	0	0	0	0

22	23	25	11	25	13	28	23	29	25	23	28	29
31	31	31	31	31	31	31	31	31	31	31	31	31
0,70968	0,742	0,80645	0,355	0,806	0,419	0,90323	0,742	0,93548	0,806	0,74194	0,90323	0,935
Mudah	Mudah	Mudah	Sedang	Mudah	Sedang	Mudah	Mudah	Mudah	Mudah	Mudah	Mudah	Mudah

24	25	26	27	28	29	30	31	32	33	34	35	36
0	0	0	1	0	0	1	0	1	1	1	1	1
1	0	1	1	0	1	1	0	1	1	0	1	1
0	1	0	0	0	1	1	1	1	1	0	1	1
1	1	1	1	1	1	1	1	1	0	0	1	0
0	0	1	1	0	1	1	0	1	1	1	1	1
1	1	1	1	1	1	1	1	0	1	0	1	0
1	1	1	1	1	1	1	1	1	1	0	1	1
1	1	1	1	1	1	1	1	1	1	0	1	1
1	1	1	1	1	1	1	1	1	1	0	1	0
1	1	1	1	1	1	1	1	1	1	0	0	0
1	1	1	1	1	1	1	1	1	0	1	0	1
1	0	0	1	1	1	1	0	0	0	1	1	1
0	1	1	1	1	1	1	1	1	0	0	1	0
1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1
0	0	1	1	1	1	1	0	1	1	0	1	0
0	1	1	1	1	1	1	1	1	1	1	1	1
1	0	1	1	1	1	1	0	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	0
1	0	1	0	1	1	1	0	1	0	1	1	1
0	0	1	0	0	0	1	0	1	0	1	1	0
1	0	1	0	1	1	1	0	0	1	1	1	0
0	0	1	0	0	0	1	0	1	1	1	1	0
1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	0	0
1	1	1	1	0	1	0	1	1	0	1	1	0
1	0	1	1	0	1	1	0	0	1	1	1	1
1	1	1	1	1	1	1	1	1	1	0	1	1
0	0	0	1	1	1	0	0	0	0	1	1	0
0	0	0	1	1	1	0	0	0	0	1	1	0
21	18	26	26	23	28	28	18	25	22	20	28	17
31	31	31	31	31	31	31	31	31	31	31	31	31
0,67742	0,581	0,839	0,839	0,742	0,903	0,903	0,581	0,806	0,70968	0,64516	0,90323	0,548
Sedang	Sedang	Mudah	Mudah	Mudah	Mudah	Mudah	Sedang	Mudah	Mudah	Sedang	Mudah	Sedang

37	38	39	40	Y	Y^2
0	0	1	1	28	784
0	0	1	0	28	784
1	1	1	0	27	729
0	1	1	0	23	529
0	0	1	1	30	900
0	1	1	0	26	676
1	1	1	0	34	1156
1	1	1	0	32	1024
1	1	1	0	34	1156
0	1	0	0	26	676
0	1	0	1	27	729
1	0	1	1	24	576
1	1	1	0	28	784
0	1	1	1	34	1156
0	1	1	1	34	1156
0	0	1	0	24	576
0	1	1	1	32	1024
0	0	1	1	31	961
0	1	1	1	33	1089
1	1	1	1	33	1089
0	0	1	1	29	841
0	0	1	1	22	484
0	0	1	1	24	576
0	0	1	1	19	361
1	1	1	1	39	1521
1	1	0	1	31	961
0	1	1	1	25	625
0	0	1	1	25	625
1	1	1	0	35	1225
0	0	1	1	15	225
0	0	1	1	15	225

10	18	28	20
31	31	31	31
0,323	0,581	0,90323	0,66667

Appendix 11b

Second Level of Difficulty Analysis

No	Kode	No Soal											
		1	2	4	5	8	9	10	11	12	13	15	18
1	UC-1	1	1	1	1	1	1	1	1	1	1	0	0
2	UC-2	1	0	1	1	1	1	1	1	1	1	1	1
3	UC-3	1	1	1	1	1	1	1	1	1	1	1	1
4	UC-4	1	1	1	1	1	1	1	1	1	1	1	1
5	UC-5	1	1	1	1	1	1	1	1	1	1	1	1
6	UC-6	1	1	1	1	1	1	1	1	1	1	1	1
7	UC-7	1	1	1	1	1	1	1	1	1	1	1	1
8	UC-8	1	1	1	1	1	1	1	1	1	1	1	1
9	UC-9	1	1	1	1	1	1	1	1	1	1	1	1
10	UC-10	1	1	1	1	1	1	1	1	1	1	1	1
11	UC-11	1	0	1	1	1	1	1	1	1	1	1	1
12	UC-12	1	0	1	1	1	1	1	1	1	1	1	1
13	UC-13	1	1	1	1	1	1	1	1	1	1	1	1
14	UC-14	1	1	1	1	1	1	1	1	1	1	1	1
15	UC-15	1	1	1	1	1	1	1	0	1	1	1	1
16	UC-16	1	1	1	1	1	1	1	1	1	1	1	1
17	UC-17	1	1	1	1	1	1	1	1	1	1	1	1
18	UC-18	1	0	1	1	1	1	1	1	1	1	1	1
19	UC-19	1	1	1	1	1	1	1	1	1	1	1	1
20	UC-20	0	0	0	0	0	0	0	0	0	0	0	0
21	UC-21	1	1	1	1	1	1	1	1	1	1	1	1
22	UC-22	1	1	1	1	1	1	0	1	1	1	1	1
23	UC-23	1	0	1	1	1	1	1	1	1	1	1	1
24	UC-24	1	1	1	1	0	1	1	1	1	1	1	1
25	UC-25	1	1	1	1	1	1	1	1	1	1	1	1
26	UC-26	1	1	1	1	1	1	1	1	1	1	0	1
27	UC-27	1	0	1	0	1	1	1	1	1	1	1	1
28	UC-28	1	1	1	1	1	1	1	1	1	1	1	1
29	UC-29	1	1	1	1	1	1	1	1	1	1	0	1
30	UC-30	1	0	1	1	1	1	1	1	1	1	1	1
31	UC -31	1	1	1	1	1	1	1	1	1	0	1	1
Tingkat Kesukaran	B	17	21	17	22	19	10	26	22	23	25	25	23
	JS	31	31	31	31	31	31	31	31	31	31	31	31
	P	0,567	0,700	0,567	0,733	0,633	0,333	0,866666667	0,733333333	0,767	0,833333333	0,833	0,767
	KRITERIA	Sedang	Sedang	Sedang	Mudah	Sedang	Sedang	Mudah	Mudah	Mudah	Mudah	Mudah	Mudah

20	21	24	25	31	32	33	36	37	38	Y	Y^2
0	1	1	1	1	1	1	1	0	0	17	289
1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	22	484
1	1	0	1	1	1	1	1	1	1	20	400
1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	0	1	20	400
1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	22	484
1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	1	1	1	1	1	1	1	22	484
0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	0	1	21	441
1	1	1	1	1	1	1	0	1	1	20	400
1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	1	1	0	1	1	1	1	20	400
1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	21	441
1	1	0	1	0	1	1	1	1	1	18	324
1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	21	441
1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	1	1	1	1	1	1	1	21	441

23	17	21	17	22	19	10	26	22	23
31	31	31	31	31	31	31	31	31	31
0,767	0,567	0,700	0,567	0,733	0,633	0,333	0,86666667	0,73333333	0,767
Mudah	Sedang	Sedang	Sedang	Mudah	Sedang	Sedang	Mudah	Mudah	Mudah

Appendix 12a

First Validity Analysis

No	Kode	No Soal									
		1	2	3	4	5	6	7	8	9	10
1	UC-1	1	1	1	1	1	1	1	1	0	1
2	UC-2	0	1	0	1	1	1	1	1	0	1
3	UC-3	1	1	0	1	1	0	0	1	1	1
4	UC-4	0	0	0	0	1	1	0	0	0	1
5	UC-5	1	1	1	1	1	0	1	0	0	1
6	UC-6	1	0	0	0	1	1	1	1	0	1
7	UC-7	1	1	0	1	1	1	1	1	1	1
8	UC-8	0	0	0	1	1	1	0	1	1	1
9	UC-9	1	1	0	0	1	0	1	1	1	1
10	UC-10	1	1	0	0	0	1	0	1	0	1
11	UC-11	1	1	1	1	0	0	1	1	0	1
12	UC-12	0	0	1	1	1	0	1	1	1	1
13	UC-13	1	1	0	0	1	0	0	0	1	1
14	UC-14	1	1	1	1	1	0	0	1	0	1
15	UC-15	1	1	1	1	0	1	0	1	0	1
16	UC-16	0	1	0	0	0	1	0	0	0	1
17	UC-17	1	1	1	1	0	0	0	1	0	1
18	UC-18	1	1	1	1	1	1	0	1	0	1
19	UC-19	1	1	1	1	1	0	0	0	0	1
20	UC-20	0	0	1	0	1	1	0	1	1	1
21	UC-21	1	1	1	1	1	1	0	1	0	1
22	UC-22	0	1	1	0	1	1	1	0	0	0
23	UC-23	0	1	1	0	1	0	1	0	0	0
24	UC-24	0	0	1	0	0	1	0	0	0	1
25	UC-25	1	1	1	1	1	1	1	1	1	1
26	UC-26	0	1	1	0	1	0	1	1	1	1
27	UC-27	0	0	1	0	0	0	0	0	0	0
28	UC-28	0	0	1	1	1	0	0	1	0	1
29	UC-29	1	1	0	1	1	1	1	0	1	1
30	UC-30	0	0	1	0	0	1	1	0	0	0
31	UC -31	0	0	1	0	0	1	1	0	0	0
Validitas	$\sum X$	17	21	20	17	22	18	15	19	10	26
	$\sum(X^2)$	17	21	20	17	22	18	15	19	10	26
	$\sum XY$	527	630	535	522	650	478	420	574	317	766
	$(\sum X)^2$	289	441	400	289	484	324	225	361	100	676
	r_{xy}	0,596	0,525	-0,293	0,538	1,081	-0,296	0,006	0,503	0,459	-11,365
	r_{tabel}	0,344	0,344	0,344	0,344	0,344	0,344	0,344	0,344	0,344	0,344
	kriteria	**Valid**	**Valid**	**Tidak**	**Valid**	**Valid**	**Tidak**	**Tidak**	**Valid**	**Valid**	**Tidak**

11	12	13	14	15	16	17	18	19	20	21	22	23
1	1	1	0	1	1	1	0	1	1	0	1	1
1	1	1	0	1	0	1	1	1	1	1	1	1
1	1	1	0	0	0	1	0	1	1	1	1	1
0	0	1	0	0	0	1	1	1	1	1	1	1
1	1	1	0	1	1	1	1	1	1	1	1	1
1	1	0	0	1	0	1	1	1	0	0	1	1
1	1	1	0	0	0	1	1	1	1	1	1	1
1	1	1	1	1	0	1	0	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	0	1	0	0	1	1	1	1	1	1
0	0	0	1	1	0	0	0	1	1	1	1	1
0	0	1	0	1	0	1	1	0	0	0	1	1
0	1	1	0	1	1	1	1	1	1	1	1	1
1	1	1	0	1	1	1	1	1	1	0	1	1
1	1	1	0	1	0	1	1	1	1	1	1	1
1	0	1	1	1	1	1	1	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1	1
1	0	1	0	1	0	1	1	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1	1
0	1	1	0	1	0	1	1	1	1	1	1	1
0	0	1	1	1	0	1	1	1	1	1	1	1
1	1	1	1	1	0	1	1	1	0	0	1	1
1	1	0	0	1	1	1	0	0	1	0	1	1
1	1	1	0	1	1	1	1	1	1	1	1	1
1	1	1	1	0	0	0	1	1	1	1	1	1
0	1	1	1	1	1	1	1	1	1	1	1	1
1	1	0	1	1	1	1	0	1	0	1	0	1
1	1	1	0	1	1	1	1	1	1	1	1	1
0	0	0	1	1	1	1	0	1	0	0	0	0
0	0	0	1	1	1	1	0	1	0	0	0	0
22	23	25	11	25	13	28	23	29	25	23	28	29
22	23	25	11	27	13	28	23	29	25	23	28	29
659	686	740	259	737	336	768	679	809	738	682	812	837
484	529	625	121	625	169	784	529	841	625	529	784	841
0,554	0,562	0,594	-0,585	0,463	-0,322	-0,294	0,470	-0,048	0,565	0,509	0,562	0,607
0,344	0,344	0,344	0,344	0,344	0,344	0,344	0,344	0,344	0,344	0,344	0,344	0,344
Valid	Valid	Valid	Tidak	Valid	Tidak	Tidak	Valid	Tidak	Valid	Valid	Valid	Valid

24	25	26	27	28	29	30	31	32	33	34	35	36
0	0	0	1	0	0	1	0	1	1	1	1	1
1	0	1	1	0	1	1	0	1	1	0	1	1
0	1	0	0	0	1	1	1	1	1	0	1	1
1	1	1	1	1	1	1	1	1	0	0	1	0
0	0	1	1	0	1	1	0	1	1	1	1	1
1	1	1	1	1	1	1	1	0	1	0	1	0
1	1	1	1	1	1	1	1	1	1	0	1	1
1	1	1	1	1	1	1	1	1	1	0	1	1
1	1	1	1	1	1	1	1	1	1	0	1	0
1	1	1	1	1	1	1	1	1	1	0	0	0
1	1	1	1	1	1	1	1	1	0	1	0	1
1	0	0	1	1	1	1	0	0	0	1	1	1
0	1	1	1	1	1	1	1	1	0	0	1	0
1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1
0	0	1	1	1	1	1	0	1	1	0	1	0
0	1	1	1	1	1	1	1	1	1	1	1	1
1	0	1	1	1	1	1	0	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	0
1	0	1	0	1	1	1	0	1	0	1	1	1
0	0	1	0	0	0	1	0	1	0	1	1	0
1	0	1	0	1	1	1	0	0	1	1	1	0
0	0	1	0	0	0	1	0	1	1	1	1	0
1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	0	0
1	1	1	1	0	1	0	1	1	0	1	1	0
1	0	1	1	0	1	1	0	0	1	1	1	1
1	1	1	1	1	1	1	1	1	1	0	1	1
0	0	0	1	1	1	0	0	0	0	1	1	0
0	0	0	1	1	1	0	0	0	0	1	1	0
21	18	26	26	23	28	28	18	25	22	20	28	17
21	18	26	26	23	28	28	18	25	22	20	28	17
627	553	758	731	648	783	812	631	738	659	535	768	522
441	324	676	676	529	784	784	324	625	484	400	784	289
0,000	0,578	0,482	0,060	0,062	-0,002	0,562	1,487	0,565	0,554	-0,293	-0,294	0,538
0,344	0,344	0,344	0,344	0,344	0,344	0,344	0,344	0,344	0,344	0,344	0,344	0,344
Valid	Valid	Valid	Tidak	Tidak	Tidak	Valid	Valid	Valid	Valid	Tidak	Tidak	Valid

37	38	39	40	Y	Y^2
0	0	1	1	28	784
0	0	1	0	28	784
1	1	1	0	27	729
0	1	1	0	23	529
0	0	1	1	30	900
0	1	1	0	26	676
1	1	1	0	34	1156
1	1	1	0	32	1024
1	1	1	0	34	1156
0	1	0	0	26	676
0	1	0	1	27	729
1	0	1	1	24	576
1	1	1	0	28	784
0	1	1	1	34	1156
0	1	1	1	34	1156
0	0	1	0	24	576
0	1	1	1	32	1024
0	0	1	1	31	961
0	1	1	1	33	1089
1	1	1	1	33	1089
0	0	1	1	29	841
0	0	1	1	22	484
0	0	1	1	24	576
0	0	1	1	19	361
1	1	1	1	39	1521
1	1	0	1	31	961
0	1	1	1	25	625
0	0	1	1	25	625
1	1	1	0	35	1225
0	0	1	1	15	225
0	0	1	1	15	225
10	18	28	20	867	25223
10	18	28	20	$(\sum Y)^2=$	751689
317	553	768	535		
100	324	784	400		
0,459	0,578	-0,294	-0,293		
0,344	0,344	0,344	0,344		
Valid	**Valid**	**Tidak**	**Tidak**		

Appendix 12b

Second Validity Analysis

No	Kode	No Soal										
		1	2	4	5	8	9	10	11	12	13	15
1	UC-1	1	1	1	1	1	1	1	1	1	1	0
2	UC-2	1	0	1	1	1	1	1	1	1	1	1
3	UC-3	1	1	1	1	1	1	1	1	1	1	1
4	UC-4	1	1	1	1	1	1	1	1	1	1	1
5	UC-5	1	1	1	1	1	1	1	1	1	1	1
6	UC-6	1	1	1	1	1	1	1	1	1	1	1
7	UC-7	1	1	1	1	1	1	1	1	1	1	1
8	UC-8	1	1	1	1	1	1	1	1	1	1	1
9	UC-9	1	1	1	1	1	1	1	1	1	1	1
10	UC-10	1	1	1	1	1	1	1	1	1	1	1
11	UC-11	1	0	1	1	1	1	1	1	1	1	1
12	UC-12	1	0	1	1	1	1	1	1	1	1	1
13	UC-13	1	1	1	1	1	1	1	1	1	1	1
14	UC-14	1	1	1	1	1	1	1	1	1	1	1
15	UC-15	1	1	1	1	1	1	1	0	1	1	1
16	UC-16	1	1	1	1	1	1	1	1	1	1	1
17	UC-17	1	1	1	1	1	1	1	1	1	1	1
18	UC-18	1	0	1	1	1	1	1	1	1	1	1
19	UC-19	1	1	1	1	1	1	1	1	1	1	1
20	UC-20	0	0	0	0	0	0	0	0	0	0	0
21	UC-21	1	1	1	1	1	1	1	1	1	1	1
22	UC-22	1	1	1	1	1	1	0	1	1	1	1
23	UC-23	1	0	1	1	1	1	1	1	1	1	1
24	UC-24	1	1	1	1	0	1	1	1	1	1	1
25	UC-25	1	1	1	1	1	1	1	1	1	1	1
26	UC-26	1	1	1	1	1	1	1	1	1	1	0
27	UC-27	1	0	1	0	1	1	1	1	1	1	1
28	UC-28	1	1	1	1	1	1	1	1	1	1	1
29	UC-29	1	1	1	1	1	1	1	1	1	1	0
30	UC-30	1	0	1	1	1	1	1	1	1	1	1
31	UC -31	1	1	1	1	1	1	1	1	1	0	1
Validitas	$\sum X$	30	23	30	29	29	30	29	29	30	29	27
	$\sum(X^2)$	30	23	30	29	29	30	29	29	30	29	27
	$\sum XY$	629	491	629	611	609	629	609	609	629	608	570
	$(\sum X)^2$	900	529	900	841	841	900	841	841	900	841	729
	r_{xy}	1,998	0,967	1,998	1,599	1,458	1,998	1,458	1,458	1,998	1,387	1,150
	r_{tabel}	0,355	0,355	0,355	0,355	0,355	0,355	0,355	0,355	0,355	0,355	0,355
	kriteria	**Valid**	**Valid**	**Valid**	**Valid**	**Valid**	**Valid**	**Valid**	**Valid**	**Valid**	**Valid**	**Valid**

18	20	21	24	25	31	32	33	36	37	38	Y	Y^2
0	0	1	1	1	1	1	1	1	0	0	17	289
1	1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	0	1	20	400
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	1	1	1	1	1	1	1	1	22	484
0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	0	1	21	441
1	1	1	1	1	1	1	1	0	1	1	20	400
1	1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	1	1	1	0	1	1	1	1	20	400
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	21	441
1	1	1	0	1	0	1	1	1	1	1	18	324
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	21	441
1	1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	1	1	1	1	1	1	1	1	21	441
29	29	30	23	30	29	29	30	29	27	29	629	13237
29	29	30	23	30	29	29	30	29	27	29	(∑Y)²=	407044
612	612	629	491	629	611	609	629	609	571	612		
841	841	900	529	900	841	841	900	841	729	841		
1,670	1,670	1,998	0,967	1,998	1,599	1,458	1,998	1,458	1,202	1,670		
0,355	0,355	0,355	0,355	0,355	0,355	0,355	0,355	0,355	0,355	0,355		
Valid	**Valid**	**Valid**	**Valid**	**Valid**	**Valid**	**Valid**	**Valid**	**Valid**	**Valid**	**Valid**		

Appendix 13a

First Reliability Analysis

No	Kode	No Soal									
		1	2	3	4	5	6	7	8	9	1
1	UC-1	1	1	1	1	1	1	1	1	0	
2	UC-2	0	1	0	1	1	1	1	1	0	
3	UC-3	1	1	0	1	1	0	0	1		
4	UC-4	0	0	0	0	1	1	0	0		
5	UC-5	1	1	1	1	1	0	1	0		
6	UC-6	1	0	0	0	1	1	1			
7	UC-7	1	1	0	1	1	1	1			
8	UC-8	0	0	0	1	1	1				
9	UC-9	1	1	0	0	1	0				
10	UC-10	1	1	0	0	0	1				
11	UC-11	1	1	1	1	0					
12	UC-12	0	0	1	1	1					
13	UC-13	1	1	0	0	1					
14	UC-14	1	1	1	1						
15	UC-15	1	1	1	1						
16	UC-16	0	1	0	0						
17	UC-17	1	1	1							
18	UC-18	1	1	1							
19	UC-19	1	1	1							
20	UC-20	0	0								
21	UC-21	1	1								
22	UC-22	0									
23	UC-23	0									
24	UC-24	0									
25	UC-25										
26	UC-26										
27	UC-2										
28	U										
29											
30											

Reliabilitas											
	(∑X)2	289	441	400	289	484	324	225	361	100	676
	RATA2	9,32	14,23	12,90	9,32	15,61	10,45	7,26	11,65	3,23	21,81
	σi^2	0,248	0,219	0,229	0,248	0,206	0,243	0,250	0,237	0,219	0,135
	$\sum(\sigma i^2)$	5,413									
	(σt^2)	31,451									
		0,856									

11	12	13	14	15	16	17	18	19	20	21	22	23
1	1	1	0	1	1	1	0	1	1	0	1	1
1	1	1	0	1	0	1	1	1	1	1	1	1
1	1	1	0	0	0	1	0	1	1	1	1	1
0	0	1	0	0	0	1	1	1	1	1	1	1
1	1	1	0	1	1	1	1	1	1	1	1	1
1	1	0	0	1	0	1	1	1	0	0	1	1
1	1	1	0	0	0	1	1	1	1	1	1	1
1	1	1	1	1	0	1	0	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	0	1	0	0	1	1	1	1	1	1
0	0	0	1	1	0	0	0	1	1	1	1	1
0	0	1	0	1	0	1	1	0	0	0	1	1
0	1	1	0	1	1	1	1	1	1	1	1	1
1	1	1	0	1	1	1	1	1	1	0	1	1
1	1	1	0	1	0	1	1	1	1	1	1	1
1	0	1	1	1	1	1	1	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1	1
1	0	1	0	1	0	1	1	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1	1
0	1	1	0	1	0	1	1	1	1	1	1	1
0	0	1	1	1	0	1	1	1	1	1	1	1
1	1	1	1	1	0	1	1	1	0	0	1	1
1	1	0	0	1	1	1	0	0	1	0	1	1
1	1	1	0	1	1	1	1	1	1	1	1	1
1	1	1	1	0	0	0	1	1	1	1	1	1
0	1	1	1	1	1	1	1	1	1	1	1	1
1	1	0	1	1	1	1	0	1	0	1	0	1
1	1	1	0	1	1	1	1	1	1	1	1	1
0	0	0	1	1	1	1	0	1	0	0	0	0
0	0	0	1	1	1	1	0	1	0	0	0	0

484	529	625	121	625	169	784	529	841	625	529	784	841
15,61	17,06	20,16	3,90	20,16	5,45	25,29	17,06	27,13	20,16	17,06	25,29	27,13
0,206	0,191	0,156	0,229	0,221	0,243	0,087	0,191	0,060	0,156	0,191	0,087	0,060

24	25	26	27	28	29	30	31	32	33	34	35	36
0	0	0	1	0	0	1	0	1	1	1	1	1
1	0	1	1	0	1	1	0	1	1	0	1	1
0	1	0	0	0	1	1	1	1	1	0	1	1
1	1	1	1	1	1	1	1	1	0	0	1	0
0	0	1	1	0	1	1	0	1	1	1	1	1
1	1	1	1	1	1	1	1	0	1	0	1	0
1	1	1	1	1	1	1	1	1	1	0	1	1
1	1	1	1	1	1	1	1	1	1	0	1	1
1	1	1	1	1	1	1	1	1	1	0	1	0
1	1	1	1	1	1	1	1	1	1	0	0	0
1	1	1	1	1	1	1	1	1	0	1	0	1
1	0	0	1	1	1	1	0	0	0	1	1	1
0	1	1	1	1	1	1	1	1	0	0	1	0
1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1
0	0	1	1	1	1	1	0	1	1	0	1	0
0	1	1	1	1	1	1	1	1	1	1	1	1
1	0	1	1	1	1	1	0	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	0
1	0	1	0	1	1	1	0	1	0	1	1	1
0	0	1	0	0	0	1	0	1	0	1	1	0
1	0	1	0	1	1	1	0	0	1	1	1	0
0	0	1	0	0	0	1	0	1	1	1	1	0
1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	0	0
1	1	1	1	0	1	0	1	1	0	1	1	0
1	0	1	1	0	1	1	0	0	1	1	1	1
1	1	1	1	1	1	1	1	1	1	0	1	1
0	0	0	1	1	1	0	0	0	0	1	1	0
0	0	0	1	1	1	0	0	0	0	1	1	0

441	324	676	676	529	784	784	324	625	484	400	784	289
14,23	10,45	21,81	21,81	17,06	25,29	25,29	10,45	20,16	15,61	12,90	25,29	9,32
0,219	0,243	0,135	0,135	0,191	0,087	0,087	0,243	0,156	0,206	0,229	0,087	0,248

37	38	39	40	Y	Y^2
0	0	1	1	28	784
0	0	1	0	28	784
1	1	1	0	27	729
0	1	1	0	23	529
0	0	1	1	30	900
0	1	1	0	26	676
1	1	1	0	34	1156
1	1	1	0	32	1024
1	1	1	0	34	1156
0	1	0	0	26	676
0	1	0	1	27	729
1	0	1	1	24	576
1	1	1	0	28	784
0	1	1	1	34	1156
0	1	1	1	34	1156
0	0	1	0	24	576
0	1	1	1	32	1024
0	0	1	1	31	961
0	1	1	1	33	1089
1	1	1	1	33	1089
0	0	1	1	29	841
0	0	1	1	22	484
0	0	1	1	24	576
0	0	1	1	19	361
1	1	1	1	39	1521
1	1	0	1	31	961
0	1	1	1	25	625
0	0	1	1	25	625
1	1	1	0	35	1225
0	0	1	1	15	225
0	0	1	1	15	225

100	324	784	400
3,23	10,45	25,29	12,90
0,219	0,243	0,087	0,229

Appendix 13b

Second Reliability Analysis

No	Kode	No Soal										
		1	2	4	5	8	9	10	11	12	13	15
1	UC-1	1	1	1	1	1	1	1	1	1	1	0
2	UC-2	1	0	1	1	1	1	1	1	1	1	1
3	UC-3	1	1	1	1	1	1	1	1	1	1	1
4	UC-4	1	1	1	1	1	1	1	1	1	1	1
5	UC-5	1	1	1	1	1	1	1	1	1	1	1
6	UC-6	1	1	1	1	1	1	1	1	1	1	1
7	UC-7	1	1	1	1	1	1	1	1	1	1	1
8	UC-8	1	1	1	1	1	1	1	1	1	1	1
9	UC-9	1	1	1	1	1	1	1	1	1	1	1
10	UC-10	1	1	1	1	1	1	1	1	1	1	1
11	UC-11	1	0	1	1	1	1	1	1	1	1	1
12	UC-12	1	0	1	1	1	1	1	1	1	1	1
13	UC-13	1	1	1	1	1	1	1	1	1	1	1
14	UC-14	1	1	1	1	1	1	1	1	1	1	1
15	UC-15	1	1	1	1	1	1	1	0	1	1	1
16	UC-16	1	1	1	1	1	1	1	1	1	1	1
17	UC-17	1	1	1	1	1	1	1	1	1	1	1
18	UC-18	1	0	1	1	1	1	1	1	1	1	1
19	UC-19	1	1	1	1	1	1	1	1	1	1	1
20	UC-20	0	0	0	0	0	0	0	0	0	0	0
21	UC-21	1	1	1	1	1	1	1	1	1	1	1
22	UC-22	1	1	1	1	1	1	0	1	1	1	1
23	UC-23	1	0	1	1	1	1	1	1	1	1	1
24	UC-24	1	1	1	1	0	1	1	1	1	1	1
25	UC-25	1	1	1	1	1	1	1	1	1	1	1
26	UC-26	1	1	1	1	1	1	1	1	1	1	0
27	UC-27	1	0	1	0	1	1	1	1	1	1	1
28	UC-28	1	1	1	1	1	1	1	1	1	1	1
29	UC-29	1	1	1	1	1	1	1	1	1	1	0
30	UC-30	1	0	1	1	1	1	1	1	1	1	1
31	UC-31	1	1	1	1	1	1	1	1	1	0	1
	$(\sum X)2$	900	441	289	484	361	100	676	484	529	625	625
	RATA2	29,03	14,70	9,63	16,13	12,03	3,33	22,53	16,13	17,63	20,83	20,83
Reliabilitas	σi^2	0,031	0,210	0,246	0,196	0,232	0,222	0,116	0,196	0,179	0,139	0,206
	$\sum(\sigma i^2)$	4,170										
	(σt^2)	15,303										
		0,752										

18	20	21	24	25	31	32	33	36	37	38	Y	Y^2
0	0	1	1	1	1	1	1	1	0	0	17	289
1	1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	0	1	20	400
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	1	1	1	1	1	1	1	1	22	484
0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	0	1	21	441
1	1	1	1	1	1	1	1	0	1	1	20	400
1	1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	1	1	1	0	1	1	1	1	20	400
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	21	441
1	1	1	0	1	0	1	1	1	1	1	18	324
1	1	1	1	1	1	1	1	1	1	1	22	484
1	1	1	1	1	1	1	1	1	1	1	21	441
1	1	1	0	1	1	1	1	1	1	1	20	400
1	1	1	1	1	1	1	1	1	1	1	21	441

529	529	289	441	289	484	361	100	676	484	529
17,63	17,63	9,63	14,70	9,63	16,13	12,03	3,33	22,53	16,13	17,63
0,179	0,179	0,246	0,210	0,246	0,196	0,232	0,222	0,116	0,196	0,179

Appendix 14a

Control class normality test

Normality Test Initial Score of Control Class

Hypothesis

H_0 : Data is normally distributed

H_1 : Data is not normally distributed

Hypothesis test

X^2 $\sum_{i=1}^{k} \frac{(O_i - E_i)^2}{Ei}$

Criteria used

H_0 is accepted if $X^2_{count} \leq X^2_{(1-\alpha)(k-1)table}$

Hypothesis test

Maximum score = 79

Minimum score = 57

Score range = 79 – 57 = 22

Number of classes = 1 + 3,3 log 31 = 5,921 = 6 kelass

Class length = 22/6 = 3,6667 = 4

Table of Finding the Mean and Standard Deviation

No	X	$X - \bar{X}$	$(X - \bar{X})^2$
1	60	-8	64
2	59	-9	81
3	74	6	36
4	61	-7	49
5	65	-3	9
6	76	8	64
7	69	1	1
8	71	3	9
9	70	2	4
10	68	0	0
11	77	9	81
12	59	-9	81
13	76	8	64
14	76	8	64
15	66	-2	4
16	60	-8	64
17	68	0	0
18	72	4	16
19	72	4	16
20	65	-3	9
21	79	11	121
22	62	-6	36
23	57	-11	121
24	77	9	81
25	66	-2	4
26	66	-2	4
27	60	-8	64
28	77	9	81
29	65	-3	9
30	68	0	0
31	67	-1	1
$\sum$	2108		1238

Mean $(\bar{X}) = \frac{\Sigma X}{N} = \frac{2108}{31} = 68$

Standard deviation (S)

$S^2 = \frac{\sum(\mathbf{X}-\mathbf{X})^2}{n-1} = \frac{1238}{(31-1)}$

$S^2 = 45{,}8519 = S = 6{,}7714$

List of control class observation frequency scores

Class	Cl	Zi	P(Zi)	Area	Oi	Ei	$\frac{(O_i - E_i)^2}{E_i}$
57-60	56,5	-1,79019	0,4633	0,0863	6	2,6753	4,131735
61-64	60,5	-1,16751	0,377	0,1716	2	5,3196	2,071536
65-68	64,5	-0,54484	0,2054	0,2333	10	7,2323	1,05916
69-72	68,5	0,077834	-0,0279	0,2301	5	7,1331	0,637888
73-76	72,5	0,700508	-0,258	0,1486	4	4,6066	0,079877
77-80	76,5	1,323181	-0,4066	0,0672	4	2,0832	1,763692
	80,5	1,945854	-0,4738				
		Total			31	X^2 = 9,743888	

Information:

Cl= lower class limit – 0,5

Zi = $\frac{Bk-X}{S}$

P(Zi) = the Z_i value in the area table under the curve of the standard normal curve of O untill Z

Area = $P(Z_1) - P(Z_2)$

Ei = Area x N

Oi = f_i

Data score using α =5% with df = 6-1 = 5 is obtained X^2 = 11,07

Because $X^2_{count} < X^2_{table}$ then the data score is normally distributed.

Appendix 14b

Experimental class normality test

Normality Test Initial Score Experiment Class

Hypothesis

H_0 : Data is normally distributed

H_1 : Data is not normally distributed

Hypothesis test

$X^2 \quad \sum_{i=1}^{k} \frac{(O_i - E_i)^2}{Ei}$

Criteria used

H_0 is accepted if $x^2_{hitung} \leq x^2_{(1-\alpha)(k-1)tabel}$

Hypothesis test

Maximum score = 78

Minimum score = 53

Score range = 78 – 53 = 25

Number of classes = 1 + 3,3 log 31 = 5,921 = 6 kelas

Class length = 25/6 = 4,166667 = 4

Table of Finding the Mean and Standard Deviation

No	X	$X - \bar{X}$	$(X - \bar{X})^2$
1	60	-5,419354839	29,36941
2	59	-6,419354839	41,20812
3	55	-10,41935484	108,563
4	60	-5,419354839	29,36941
5	59	-6,419354839	41,20812
6	53	-12,41935484	154,2404
7	63	-2,419354839	5,853278
8	65	-0,419354839	0,175858
9	66	0,580645161	0,337149
10	65	-0,419354839	0,175858
11	70	4,580645161	20,98231
12	64	-1,419354839	2,014568
13	59	-6,419354839	41,20812
14	78	12,58064516	158,2726
15	68	2,580645161	6,659729
16	62	-3,419354839	11,69199
17	65	-0,419354839	0,175858
18	73	7,580645161	57,46618
19	70	4,580645161	20,98231
20	58	-7,419354839	55,04683
21	67	1,580645161	2,498439
22	74	8,580645161	73,62747
23	76	10,58064516	111,9501
24	71	5,580645161	31,1436
25	61	-4,419354839	19,5307
26	77	11,58064516	134,1113
27	60	-5,419354839	29,36941
28	69	3,580645161	12,82102
29	64	-1,419354839	2,014568
30	63	-2,419354839	5,853278
31	74	8,580645161	73,62747
$\sum$ X	2028		1281,548

Mean $(\bar{X}) = \frac{\Sigma X}{N} = \frac{2028}{31} = 65,4194$

Standard deviation (S)

$S^2 = \frac{\sum(\mathbf{X}-\mathbf{X})^2}{n-1}$

$= \frac{1281,5}{(31-1)}$

$S^2 = 47,465$

$S = 6,8895$

List of control class observation frequency scores

Class	Cl	Zi	P(Zi)	Area	Oi	Ei	$\frac{(O_i - E_i)^2}{E_i}$
53-57	52,5	-1,97667	0,4633	0,0764	2	2,3684	0,057304
58-62	57,5	-1,21167	0,3869	0,2169	9	6,7239	0,77048
63-67	62,5	-0,44666	0,17	0,2917	9	9,0427	0,000202
68-72	67,5	0,31834	-0,1217	0,2382	5	7,3842	0,769807
73-77	72,5	1,083343	-0,3599	0,1072	5	3,3232	0,84607
78-82	77,5	1,848346	-0,4671	0,0284	1	0,8804	0,016247
	82,5	2,613349	-0,4955				
Total					31	X^2 = 2,46011	

Information:

Cl= lower class limit – 0,5

Zi = $\frac{Bk-X}{S}$

P(Zi) = the Z_i value in the area table under the curve of the standard normal curve of O unttill Z

Area = $P(Z_1) - P(Z_2)$

Ei = area x N

Oi = f_i

Data score using α =5% with df = 6-1 = 5 is obtained X^2 = 11,07

Because $X^2_{count} < X^2_{table}$ then the data score is normally distributed.

Appendix 15

Homogeneity Test

HOMOGENEITY TEST OF TWO VARIANCES OF INITIAL SCORE DATA BETWEEN THE CONTROL AND EXPERIMENT CLASSES

Hypothesis

H_0 : $\sigma_1^2 = \sigma_2^2$

H_1 : $\sigma_1^2 \neq \sigma_2^2$

Hypothesis testing

To determine the hypothesis used the formula:

$$F_{count} = \frac{Biggest\ variance}{Smallest\ variance}$$

H_0 is accepted if $F_{count} \leq F_{tabel} = F_{\{\frac{1}{2}a(v_1.v_2)\}}$

From the data obtained:

Source of variation	Control	Experiment
Total Score	2108	2028
N	31	31
$\overline{X}$	68,00	65,42
Variance	41,27	42,72
Standard Deviation	6,42	6,54

Based on the above formula obtained:

$$F_{count} = \frac{42,7183}{41,2667} = 1,035$$

At a = 5% with

df of numerator = nb-1 = 31 - 1 = 30

df of denominator = nb-1 = 31 - 1 = 30

$F_{(0,05)(30;30)}$ = 2,38

Because F_{count} is in the H_0 acceptance area, it can be concluded that the two classes are homogeneous.

Appendix 16a

Control class normality test

Normality Test Final Score of Control Class

Hypothesis

H_0 : Data is normally distributed

H_1 : Data is not normally distributed

Hypothesis test

X^2 $\sum_{i=1}^{k} \frac{(O_i - E_i)^2}{Ei}$

Criteria used

H_0 is accepted if $X^2_{count} \leq X^2_{(1-\alpha)(k-1)table}$

Hypothesis test

Maximum score = 84

Minimum score = 62

Score range = 84 – 62 = 22

Number of classes = 1 + 3,3 log 31 = 5,921 = 6 kelass

Class length = 30/6 = 5

Table of Finding the Mean and Standard Deviation

No	X	$X - \bar{X}$	$(X - \bar{X})^2$
1	65	-8	64
2	64	-9	81
3	79	6	36
4	66	-7	49
5	70	-3	9
6	81	8	64
7	74	1	1
8	76	3	9
9	75	2	4
10	73	0	0
11	82	9	81
12	64	-9	81
13	81	8	64
14	81	8	64
15	71	-2	4
16	65	-8	64
17	73	0	0
18	77	4	16
19	77	4	16
20	70	-3	9
21	84	11	121
22	67	-6	36
23	62	-11	121
24	82	9	81
25	71	-2	4
26	71	-2	4
27	65	-8	64
28	82	9	81
29	70	-3	9
30	73	0	0
31	72	-1	1
$\sum$	2263		1238

Mean $(\bar{X}) = \frac{\Sigma X}{N} = \frac{2263}{31} = 73$

Standard deviation (S)

$S^2 = \frac{\sum(\mathbf{X}-\mathbf{X})^2}{n-1}$

$= \frac{1238}{(31-1)}$

$S^2 = 39{,}935$

$S = 6{,}319$

List of control class observation frequency scores

Class	Cl	Zi	P(Zi)	Area	Oi	Ei	$\frac{(O_i - E_i)^2}{E_i}$
	61,5	-1,81978	0,4649				
62-65				0,0839	6	2,6009	4,442263
	65,5	-1,18681	0,381				
66-69				0,1722	2	5,3382	2,087516
	69,5	-0,55385	0,2088				
70-73				0,2407	10	7,4617	0,863472
			-				
	73,5	0,079121	0,0319				
74-77				0,2292	5	7,1052	0,62375
			-				
	77,5	0,712087	0,2611				
78-81				0,1488	4	4,6128	0,081409
			-				
	81,5	1,345053	0,4099				
82-85				0,0657	4	2,0367	1,892545
			-				
	85,5	1,978019	0,4756				
		Total			31	$X^2 = 9{,}990955$	

Information:

Cl= lower class limit – 0,5

$Z_i = \frac{Bk - X}{S}$

P(Zi) = the Z_i value in the area table under the curve of the standard normal curve of O untill Z

Area = $P(Z_1) - P(Z_2)$

Ei = area x N

Oi = f_i

Data score using α =5% with df = 6-1 = 5 is obtained X^2 = 11,07

Because $X^2_{count} < X^2_{table}$ then the data score is normally distributed.

Appendix 16b

Normality Test Final Score Experiment Class

Hypothesis

H_0 : Data is normally distributed

H_1 : Data is not normally distributed

Hypothesis test

$X^2 \quad \sum_{i=1}^{k} \frac{(O_i - E_i)^2}{Ei}$

Criteria used

H_0 is accepted if $x^2_{hitung} \leq x^2_{(1-\alpha)(k-1)tabel}$

Hypothesis test

Maximum score = 100

Minimum score = 80

Score range = 100 – 80 = 20

Number of classes = 1 + 3,3 log 31 = 5,921 = 6 kelas

Class length = 20/6 = 3,33 = 3

Table of Finding the Mean and Standard Deviation

No	X	$X - \bar{X}$	$(X - \bar{X})^2$
1	100	3,548387097	12,59105
2	90	-6,451612903	41,62331
3	100	3,548387097	12,59105
4	100	3,548387097	12,59105
5	90	-6,451612903	41,62331
6	80	-36,4516129	1328,72
7	100	3,548387097	12,59105
8	100	3,548387097	12,59105
9	100	3,548387097	12,59105
10	100	3,548387097	12,59105
11	100	3,548387097	12,59105
12	100	3,548387097	12,59105
13	100	3,548387097	12,59105
14	100	3,548387097	12,59105
15	100	3,548387097	12,59105
16	100	3,548387097	12,59105
17	100	3,548387097	12,59105
18	100	3,548387097	12,59105
19	100	3,548387097	12,59105
20	80	-16,4516129	270,6556
21	100	3,548387097	12,59105
22	80	-16,4516129	270,6556
23	100	3,548387097	12,59105
24	100	3,548387097	12,59105
25	100	3,548387097	12,59105
26	100	3,548387097	12,59105
27	90	-6,451612903	41,62331
28	100	3,548387097	12,59105
29	100	3,548387097	12,59105
30	100	3,548387097	12,59105
31	100	3,548387097	12,59105
$\sum$ X	2990		2309,677

Mean $(\bar{X}) = \frac{\Sigma X}{N} = \frac{2990}{31} = 96,45161$

Standard deviation (S)

$$S^2 = \frac{\sum(\mathbf{X}-\mathbf{X})^2}{n-1}$$

$$= \frac{1238{,}71}{(31-1)}$$

S^2 = 41,29032

S = 6,425755

List of control class observation frequency scores

Class	Cl	Zi	P(Zi)	Area	Oi	Ei	$\frac{(O_i - E_i)^2}{E_i}$
	79,5	-2,73848	0,4968				
80-82				0,0084	3	0,2604	28,82261
	82,5	-2,2716	0,4884				
83-85				0,0243	0	0,7533	0,7533
	85,5	-1,80473	0,4641				
86-88				0,8723	0	27,0413	27,0413
	88,5	-1,33786	-0,408				
89-92				-0,1471	3	-4,5601	-12,5337
	92,5	-0,71537	-0,2611				
93-95				-0,1663	0	-5,1553	-5,1553
	95,5	-0,2485	-0,0948				
96-98				-0,0116	25	-0,3596	-1788,4
	98,5	0,218375	-0,0832				
		Total			31	X^2 = -1749,47	

Information:

Cl= lower class limit – 0,5

Zi = $\frac{Bk-X}{S}$

P(Zi) = the Z_i value in the area table under the curve of the standard normal curve of O unttill Z

Area = $P(Z_1) - P(Z_2)$

Ei = area x N

Oi = f_i

Data score using α =5% with df = 6-1 = 5 is obtained X^2 = 11,07

Because $X^2_{count} < X^2_{table}$ then the data score is normally distributed.

Appendix 17

HOMOGENEITY TEST OF TWO VARIANCES OF FINAL SCORE DATA BETWEEN THE CONTROL AND EXPERIMENT CLASSES

Hypothesis

H_0 : $\sigma_1^2 = \sigma_2^2$

H_1 : $\sigma_1^2 \neq \sigma_2^2$

Hypothesis testing

To determine the hypothesis used the formula:

$$F_{count} = \frac{Biggest\ variance}{Smallest\ variance}$$

H_0 is accepted if $F_{count} \leq F_{tabel} = F_{\{\frac{1}{2}a(v_1.v_2)\}}$

From the data obtained:

Source of variation	Control	Experiment
Total Score	2263	2990
N	31	31
$\overline{X}$	73,00	96,45
Variance	39,93	41,29
Standard Deviation	6,32	6,42

Based on the above formula obtained:

$$F_{count} = \frac{41{,}2903}{39{,}935} = 0.786$$

At a = 5% with

df of numerator = nb-1 = 31 - 1 = 30

df of denominator = nb-1 = 31 - 1 = 30

$F_{(0,05)(30;30)}$ = 2,38

Because F_{count} is in the H_0 acceptance area, it can be concluded that the two classes are homogeneous.

Appendix 18

TEST OF MEAN DIFFERENCE OF INITIAL SCORE DATA BETWEEN THE CONTROL AND EXPERIMENT CLASS

Hypothesis

$H_0 : \mu_1 \leq \mu_2$

$H_1 : \mu_1 > \mu_2$

Hypothesis testing

To determine the hypothesis used the formula:

$$t = \frac{\overline{X_1} - \overline{X_2}}{s\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Where:

$$s = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

H_0 accepted if $-t_{1-1/2\alpha} \leq t \leq t_{(1-1/2\alpha)}$

From the data obtained:

Source of Variation	Control	Experiment
Total Score	2108	2128
N	31	31
$\overline{X}$	68,00	65,42
Variance	41,27	42,72
Standard Deviation	6,42	6,54

Based on the above formula obtained:

$$s = \sqrt{\frac{(31-1)41,27+(31-1)72}{31+31-2}} = 6,48$$

$$t_{count} = \frac{65,42-68,00}{6,48\sqrt{\frac{1}{31}+\frac{1}{31}}} = -1,568$$

At α = 5% with df numerator = 31 + 31 - 2 = 60 obtained $t_{(1-1/2a} = 1,67$

For t_{count} is in the H_0 acceptance area, it can be concluded that there is no the mean difference of the two groups.

Appendix 18

TEST OF MEAN DIFFERENCE OF FINAL SCORE DATA BETWEEN THE CONTROL AND EXPERIMENT CLASS

Hypothesis

$H_0 : \mu_1 \leq \mu_2$

$H_1 : \mu_1 > \mu_2$

Hypothesis testing

To determine the hypothesis used the formula:

$$t = \frac{\overline{X_1} - \overline{X_2}}{s\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Where:

$$s = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

H_0 accepted if $-t_{1-1/2\alpha} \leq t \leq t_{(1-1/2\alpha)}$

From the data obtained:

Source of Variation	Control	Experiment
Total Score	2263	3030
N	31	31
$\overline{X}$	73	97,74
Variance	39,93	41,29
Standard Deviation	6,32	6,4

Based on the above formula obtained:

$$s = \sqrt{\frac{(31-1)39.93+(31-1)41.29}{31+31-2}} = 6,37$$

$$t_{count} = \frac{97,74-73,00}{6,37\sqrt{\frac{1}{31}+\frac{1}{31}}} = 15,29066$$

At α = 5% with df numerator = 31 + 31 - 2 = 60 obtained $t_{(1-1/2a} = 1,67$

For t_{count} is in the H_0 rejection area, it can be concluded that there is the mean difference between the two groups.

Appendix 20

R Table of Product Moment

N	Significant Level		**N**	Significant Level		**N**	Significant Level	
	5%	1%		5%	1%		5%	1%

3	0.997	0.999	27	0.381	0.487	55	0.266	0.345
4	0.950	0.990	28	0.374	0.478	60	0.254	0.330
5	0.878	0.959	29	0.367	0470	65	0.244	0.317
6	0.811	0.917	30	0.361	0.463	70	0.235	0.306
7	0.754	0.874	31	0.355	0.456	75	0.227	0.296
8	0.707	0.834	32	0.349	0.449	80	0.220	0.286
9	0.666	0.798	33	0.344	0.442	85	0.213	0.278
10	0.632	0.765	34	0.339	0.436	90	0.207	0.270
11	0.602	0.735	35	0.334	0.430	95	0.202	0.263
12	0.576	0.708	36	0.329	0.424	100	0.195	0.256
13	0.553	0.684	37	0.325	0.418	125	0.176	0.230
14	0.532	0.661	38	0.320	0.413	150	0.159	0.210
15	0.514	0.641	39	0.316	0.408	175	0.148	0.194
16	0.497	0.623	40	0.312	0.403	200	0.138	0.181
17	0.482	0.606	41	0.308	0.398	300	0.113	0.148
18	0.468	0.590	42	0.304	0.393	400	0.098	0.128
19	0.456	0.575	43	0.301	0.389	500	0.088	0.115
20	0.444	0.561	44	0.297	0.384	600	0.080	0.105
21	0.433	0.549	45	0.294	0.380	700	0.074	0.097
22	0.423	0.537	46	0.291	0.376	800	0.070	0.091
23	0.413	0.526	47	0.288	0.372	900	0.065	0.086
24	0.404	0.515	48	0.284	0.368	1000	0.062	0.081
25	0.396	0.505	49	0.281	0.364			
26	0.388	0.496	50	0.279	0.361			

Taken from the book: Sugiyono, *Statistika Untuk Penelitian*, Cet. XVI, Bandung: Alfabeta, 2010.

Appendix 21

t Distribution Table

α for two-areas test (two tail test)						
	0.50	0.20	0.10	0.05	0.02	0.01
α for one-area test (one tail test)						
dk	0.25	0.10	0.05	0.025	0.01	0.005
1	1.000	3.078	6.314	12.706	31.821	63.657
2	0.816	1.886	2.920	4.303	6.965	9.925
3	0.765	1.638	2.353	3.182	4.541	5.841
4	0.741	1.533	2.132	2.776	3.747	4.608
5	0.727	1.476	2.015	2.571	3.365	4.032
6	0.718	1.440	1.943	2.447	3.143	2.707
7	0.711	1.415	1.895	2.365	2.998	3.499
8	0.706	1.397	1.860	2.306	2.896	3.355
9	0.703	1.383	1.833	2.262	2.821	3.250
10	0.700	1.372	1.812	2.228	2.764	3.169
11	0.697	1.363	1.796	2.201	2.718	3.106
12	0.695	1.356	1.782	2.179	2.681	3.055
13	0.692	1.350	1.771	2.160	2.650	3.012
14	0.691	1.345	1.761	2.145	2.624	2.977
15	0.690	1.341	1.753	2.131	2.608	2.947
16	0.689	1.337	1.746	2.120	2.583	2.921
17	0.688	1.333	1.740	2.110	2.567	2.898
18	0.688	1.330	1.734	2.101	2.552	2.878
19	0.687	1.328	1.729	2.093	2.539	2.861
20	0.687	1.325	1.725	2.086	2.528	2.845
21	0.686	1.323	1.721	2.080	2.518	2.831
22	0.686	1.321	1.717	2.074	2.508	2.819
23	0.685	1.319	1.714	2.069	2.500	2.807
24	0.685	1.318	1.711	2.064	2.492	2.797
25	0.684	1.316	1. 708	2.060	2.485	2.787
26	0.684	1.315	1.706	2.056	2.479	2.779
27	0.684	1.314	1.703	2.052	2.473	2.771
28	0.683	1.313	1.701	2.048	2.467	2.763

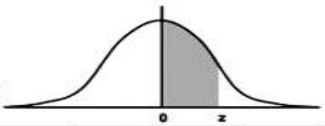
29	0.683	1.311	1.699	2.045	2.462	2.756
30	0.683	1.310	1.697	2.042	2.457	2.750
40	0.681	1.303	1.684	2.021	2.423	2.704
60	0.679	1.296	1.671	2.000	2.390	2.660
120	0.677	1.289	1.658	1.980	2.358	2.617
∞	0.674	1.282	1.645	1.960	2.326	2.576

Taken from the book: Sugiyono, *Statistika Untuk Penelitian*, Cet. XVI, Bandung: Alfabeta, 2010.

Appendix 22

TABEL Z

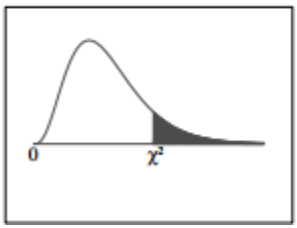
Kumulatif sebaran frekuensi normal
(Area di bawah kurva normal baku dari 0 sampai z



Z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0753
0.2	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
0.3	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
0.4	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
0.5	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
0.6	0.2257	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2517	0.2549
0.7	0.2580	0.2611	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
0.8	0.2881	0.2910	0.2939	0.2967	0.2995	0.3023	0.3051	0.3078	0.3106	0.3133
0.9	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
1.0	0.3413	0.3438	0.3461	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621
1.1	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
1.2	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
1.3	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
1.4	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
1.5	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
1.6	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
1.7	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
1.8	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706
1.9	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
2.0	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
2.1	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
2.2	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
2.3	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2.4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
2.5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2.6	0.4953	0.4955	0.4956	0.4957	0.4959	0.4960	0.4961	0.4962	0.4963	0.4964
2.7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974
2.8	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981
2.9	0.4981	0.4982	0.4982	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0.4986
3.0	0.4987	0.4987	0.4987	0.4988	0.4988	0.4989	0.4989	0.4989	0.4990	0.4990
3.1	0.4990	0.4991	0.4991	0.4991	0.4992	0.4992	0.4992	0.4992	0.4993	0.4993
3.2	0.4993	0.4993	0.4994	0.4994	0.4994	0.4994	0.4994	0.4995	0.4995	0.4995
3.3	0.4995	0.4995	0.4995	0.4996	0.4996	0.4996	0.4996	0.4996	0.4996	0.4997
3.4	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4998
3.5	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998
3.6	0.4998	0.4998	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999
3.7	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999
3.8	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999
3.9	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000

Appendix 23

Chi-Square Distribution Table



The shaded area is equal to α for $\chi^2 = \chi^2_\alpha$.

df	$\chi^2_{.995}$	$\chi^2_{.990}$	$\chi^2_{.975}$	$\chi^2_{.950}$	$\chi^2_{.900}$	$\chi^2_{.100}$	$\chi^2_{.050}$	$\chi^2_{.025}$	$\chi^2_{.010}$	$\chi^2_{.005}$
1	0.000	0.000	0.001	0.004	0.016	2.706	3.841	5.024	6.635	7.879
2	0.010	0.020	0.051	0.103	0.211	4.605	5.991	7.378	9.210	10.597
3	0.072	0.115	0.216	0.352	0.584	6.251	7.815	9.348	11.345	12.838
4	0.207	0.297	0.484	0.711	1.064	7.779	9.488	11.143	13.277	14.860
5	0.412	0.554	0.831	1.145	1.610	9.236	11.070	12.833	15.086	16.750
6	0.676	0.872	1.237	1.635	2.204	10.645	12.592	14.449	16.812	18.548
7	0.989	1.239	1.690	2.167	2.833	12.017	14.067	16.013	18.475	20.278
8	1.344	1.646	2.180	2.733	3.490	13.362	15.507	17.535	20.090	21.955
9	1.735	2.088	2.700	3.325	4.168	14.684	16.919	19.023	21.666	23.589
10	2.156	2.558	3.247	3.940	4.865	15.987	18.307	20.483	23.209	25.188
11	2.603	3.053	3.816	4.575	5.578	17.275	19.675	21.920	24.725	26.757
12	3.074	3.571	4.404	5.226	6.304	18.549	21.026	23.337	26.217	28.300
13	3.565	4.107	5.009	5.892	7.042	19.812	22.362	24.736	27.688	29.819
14	4.075	4.660	5.629	6.571	7.790	21.064	23.685	26.119	29.141	31.319
15	4.601	5.229	6.262	7.261	8.547	22.307	24.996	27.488	30.578	32.801
16	5.142	5.812	6.908	7.962	9.312	23.542	26.296	28.845	32.000	34.267
17	5.697	6.408	7.564	8.672	10.085	24.769	27.587	30.191	33.409	35.718
18	6.265	7.015	8.231	9.390	10.865	25.989	28.869	31.526	34.805	37.156
19	6.844	7.633	8.907	10.117	11.651	27.204	30.144	32.852	36.191	38.582
20	7.434	8.260	9.591	10.851	12.443	28.412	31.410	34.170	37.566	39.997
21	8.034	8.897	10.283	11.591	13.240	29.615	32.671	35.479	38.932	41.401
22	8.643	9.542	10.982	12.338	14.041	30.813	33.924	36.781	40.289	42.796
23	9.260	10.196	11.689	13.091	14.848	32.007	35.172	38.076	41.638	44.181
24	9.886	10.856	12.401	13.848	15.659	33.196	36.415	39.364	42.980	45.559
25	10.520	11.524	13.120	14.611	16.473	34.382	37.652	40.646	44.314	46.928
26	11.160	12.198	13.844	15.379	17.292	35.563	38.885	41.923	45.642	48.290
27	11.808	12.879	14.573	16.151	18.114	36.741	40.113	43.195	46.963	49.645
28	12.461	13.565	15.308	16.928	18.939	37.916	41.337	44.461	48.278	50.993
29	13.121	14.256	16.047	17.708	19.768	39.087	42.557	45.722	49.588	52.336
30	13.787	14.953	16.791	18.493	20.599	40.256	43.773	46.979	50.892	53.672
40	20.707	22.164	24.433	26.509	29.051	51.805	55.758	59.342	63.691	66.766
50	27.991	29.707	32.357	34.764	37.689	63.167	67.505	71.420	76.154	79.490
60	35.534	37.485	40.482	43.188	46.459	74.397	79.082	83.298	88.379	91.952
70	43.275	45.442	48.758	51.739	55.329	85.527	90.531	95.023	100.425	104.215
80	51.172	53.540	57.153	60.391	64.278	96.578	101.879	106.629	112.329	116.321
90	59.196	61.754	65.647	69.126	73.291	107.565	113.145	118.136	124.116	128.299
100	67.328	70.065	74.222	77.929	82.358	118.498	124.342	129.561	135.807	140.169

CURRICULUM VITAE

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SMA	: MA Salafiyah Kebumen