

# The Effectiveness of E-Module Learning History Inquiry Model to Grow Student Historical Thinking Skills Material Event Proclamation of Independence

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## Abstract

*This study aims to determine the effectiveness of e-modules to foster students' historical thinking skills on material for the proclamation of independence. The research method used is a quasi-experimental design in the form of a nonequivalent pretest-posttest control group design. The sample used was 51 high school grade XI students in Lampung. Data collection techniques obtained from observation, interviews, and pretest-posttest questionnaires. While the analysis of the data to test the effectiveness of e-modules uses the value of N-gain. The effectiveness test results are known that the N-gain value of the experimental class is obtained (0.62) and the control class (0.40), so that the N-gain value of the experimental class is greater than the control class. The historical thinking skills of students have increased for each indicator. Thus the inquiry learning history model e-module is effective in developing historical thinking skills.*

**Keywords:** E-module; history learning; inquiry; historical thinking skills.

## 1. Introduction

Education today has faced challenges that are building skills in the 21st century including those related to information and communication technology skills [1]. The presence of information and communication technology (ICT) in the world of education, has great potential as a challenge solver in education and a means or tool for developing skills in the learning process [2]. This technology will also help develop all types of thinking skills, one of which is historical thinking skills.

Historical thinking skills are abilities that must be mastered by students to be able to distinguish past, present, and future time; see and evaluate evidence; compare and analyze historical stories, illustrations, and notes from the past; interpret historical records; and build a historical story based on understanding that is appropriate to the level of development of students' thinking [3; 4]. Historical thinking skills can open opportunities for students to conduct and develop analyzes of human activities and their relationships with others [5]. To develop historical thinking skills have five forms, namely (1) Chronological Thinking; (2) Historical Comprehension; (3) Historical Analysis and Interpretation; (4) Historical Research Capabilities; and (5) Historical issues-analysis and Decision Making [6; 7].

Learning history can be a vehicle/alternative in fostering the ability to think history in students, in order to achieve its objectives the need for learning resources/teaching materials, and appropriate learning models [8]. In addition to the use of learning models that affect the learning process, one of the successes in learning is very dependent on the use of learning resources/teaching materials and media used during the learning process [9]. One of them is learning resources that can be used and appropriate for the learning process is e-module.

E-module is a module based on information and communication technology (ICT). The e-module contains systematic and interesting instructional materials that cover material content, methods, and evaluations that can be used independently to achieve the expected competencies [10]. The availability of e-modules can help students in obtaining information about learning material [11]. The use of e-modules in this study can be accessed either through a laptop or cell phone, e-modules can be accessed online or offline, for schools in remote areas that are difficult with the internet network e-modules are very helpful because they can be accessed offline [12]. In addition, e-modules can support students to be able to learn independently but still with the supervision of teachers or teaching staff at school and can also learn independently at home, because in this e-module there are materials that are relevant to what students will learn, provided learning games so that students do not get bored with the material presented [13].

In designing learning materials, five categories of capabilities can be learned by learners, namely verbal information, intellectual skills, cognitive strategies, attitudes, and motor skills. The strategy of organizing learning material consists of three stages of the thought process, namely the formation of concepts, interpretation of concepts, and application of principles [14]. This strategy plays a very important role in designing the learning of inquiry models [15].

Previous research revealed the application of inquiry learning received a positive response to students' ability skills especially in history learning [16; 17]. In some previous studies also showed that the application of guided inquiry models can improve students' historical thinking skills [18; 19] and make student activities both in class and category (active learning) [20; 21].

Based on the above reasons that have been presented and see the successful application of inquiry learning beforehand, it is important to know the effectiveness of the history learning e-module that is designed based on inquiry models to foster students' historical thinking skills.

## 2. Research methods

This research uses a quasi-experimental design in the form of a nonequivalent pretest-posttest group design [22]. This design method is used to see the comparison of student progress after learning and before learning between the experimental class and the control class [23; 24]. The sample used was grade XI high school students in Lampung with a total sample of 51 students. The data in this study were obtained through observation, interviews, and pretest and posttest questionnaires have shown to students designed to measure students' historical thinking skills.

Analysis of the effectiveness of the test data using statistical analysis of the results of research conducted an N-gain test to find out there is an increase in the value of the pretest and posttest [25; 26]. The amount of increase is calculated by the normalized N-gain formula, namely:

$$N - \text{Gain} = \frac{(\text{Posttest Score} - \text{Pretest Score})}{(\text{Ideal Score} - \text{Pretest Score})}$$

Information:

N-gain	= Normalized gain
Post test	= The final grade of learning
Pre test	= Initial value of learning
Ideal Score	= Maximum (highest) score that can be obtained

**Table 1. Distribution of N-gain Scores**

N-gain Value	Category
$g > 0,7$	High
$0,3 \leq g \leq 0,7$	Medium
$g < 0,3$	Low

### 3. Result and Discussion

The e-module effectiveness test is carried out by dividing two class groups, namely the experimental class and the control class. The treatment of the experimental class uses e-modules with inquiry models to foster students' historical thinking skills in the history learning process. While the control class is a class that uses ordinary modules that students use (conventional) in learning history. The module is in the form of a learning module that is obtained by students in the library and elsewhere.

This effectiveness test is carried out with the aim to find out the increase in the value of the pretest and posttest. In addition, it is also to find out the difference in average scores in the experimental class and the control class in growing students' historical thinking skills. The results of the effectiveness of the experimental class and the control class can be seen in the following table.

**Table 2. Effectiveness Test Results for Experimental Classes**

No.	Skill Indicator	Experimental Class		
		Pretest	Posttest	N-gain
1.	Chronological Thinking	27.6	89.2	0.84
2.	Historical Comprehension	21	75	0.69
3.	Historical Analysis and Interpretation	37.6	83.0	0.73
4.	Historical Research Capabilities	24.7	79.4	0.72
5.	Historical issues-analysis and Decision Making	27.5	75.8	0.67
<b>Average Total Value</b>		<b>36.7</b>	<b>76.0</b>	<b>0.62</b>

Based on table 2, the results of the effectiveness test posttest in the experimental class obtained 76.0 and 36.7 for the pretest. These results indicate that the posttest value obtained is greater than the pretest value, so the N-gain obtained by the experimental class is 0.62 with the category of "medium". While the results of the control class effectiveness test can be seen in the following table.

**Table 3. Control Class Effectiveness Test Results**

No.	Skill Indicator	Control Class		
		Pretest	Posttest	N-gain
1.	Chronological Thinking	40	55	0.25
2.	Historical Comprehension	37.5	50.6	0.2
3.	Historical Analysis and Interpretation	20	60	0.5
4.	Historical Research Capabilities	30	60	0.42
5.	Historical issues-analysis and Decision Making	20	50.6	0.31
<b>Average Total Value</b>		<b>20</b>	<b>50</b>	<b>0.40</b>

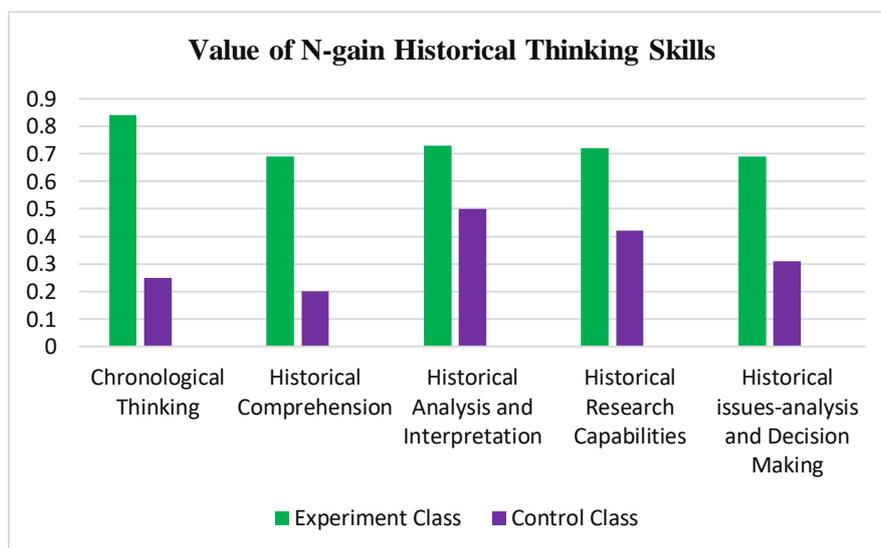
Based on table 3, the effectiveness of the pretest test results in the control class obtained 20 and 50 posttest values. These results indicate the posttest value obtained is greater than the pretest value so that the N-gain obtained by the control class is 0.40 in the

"medium" category. A summary of the results of calculating the N-gain value can be seen in the following table:

**Table 4. N-gain Value of Experiment Class and Control Class**

Class	N-gain	Category
Experiment	0.6	Medium
Control	0.4	Medium

Thus, based on the results of effectiveness tests conducted on the experimental class and control class groups, there are differences and improvements. It can be seen from the results of the N-gain value, the experimental class obtained an N-gain value of 0.62 with a moderate category while the control class only gained a value of 0.49 with a moderate category. Even though the N-gain value category is in the medium category, the experimental class N-gain value is greater than the control class N-gain value. Then this shows that the e-module of learning the history of this inquiry model that is used as a medium of learning history in the experimental class is more effective than the conventional module in the control class. Summary of indicators of historical thinking skills of students in the experimental class and the control class can be seen in the following diagram.



**Figure 1. Results Diagram of N-gain Value in Historical Thinking Skills**

Based on Figure 1 shows that the highest N-gain value of historical thinking skills in the experimental class is Chronological Thinking, while the highest indicator control class is Historical Analysis and Interpretation. The results of the calculation of the N-Gain value indicate that an increase in students' historical thinking skills can be seen from the pretest and posttest scores. Previously students' historical thinking skills were still in the "low" category. This is caused by students who are not yet accustomed to come up with many ideas and questions and are not yet accustomed to carrying out detailed material analysis steps.

After using the inquiry learning history e-module, students' historical thinking skills fall into the "medium" category. Through e-modules that have been developed, students are taught to analyze material through problem-solving activities and detailed and systematic analysis steps so that students can answer various questions varying so that all indicators of historical thinking skills are chronological thinking, historical comprehension, historical analysis and interpretation, historical research capabilities, and

historical issues-analysis and decision making. The calculation results of the N-Gain value of the experimental class and the control class are both included in the moderate category, but the difference in the value of the N-gain of the experimental class is greater than in the control class, so the inquiry learning model history e-module is effective in growing students' historical thinking skills.

The use of e-modules that have been developed can foster indicators of students' historical thinking skills on indicators of chronological thinking students can identify the timeline of each event as an initial hypothesis of research as revealed by Mala Citra Dara & Elis Setiawati (2017) [27] in her research, the chronological thinking indicator is seen from students answering questions from the steps that have been done in detail. This is in line with the statement of Endang Eriany (2019) [28] that Chronological Thinking is related to the skills of interpreting and compiling a timeline, as well as explaining the concept of historical continuity and change.

Indicators of historical comprehension skills can be seen from students being able to identify the basic elements of a narrative or structure of historical events. This can be seen from how students develop the ability to describe the past based on the experience of historical actors, historical literature, art, artifacts, and historical records from their time [29]. Indicators of historical analysis and interpretation skills can be seen from students comparing and contrasting each student's personal experiences related to historical events [30].

Indicators of historical research capabilities can be seen from students formulating historical questions based on historical documents, photographs, artifacts, visits to historic sites, and from the testimonies of historical actors [31]. While indicators of historical issues-analysis and decision making can be seen from the ability of students to identify the problems confronted by society against historical literature, local communities, states; to analyze the varied interests and motivations of a community caught in the situation; to evaluate alternative solutions to problem-solving in order to follow up [32].

Historical thinking skills of the 5 indicators can make learning history more meaningful than just memorizing a series of facts. The key to being able to realize historical learning as referred to above lies with educators as the "life-curriculum". The change in the paradigm of material-based learning to inquiry-based learning is a necessity. Mastery of various approaches and learning methods from educators is needed to facilitate the occurrence of meaningful learning. Through meaningful learning, students are expected to develop into individuals who can play an important role as individuals, as citizens, and as citizens of the world.

The applied inquiry learning model can foster aspects of students' report writing skills, this is following the statement put forward by Ibrahim Bilgin (2009) [33] which says that learning activities using guided inquiry help students to develop a sense of individual responsibility, cognitive methods, report generation, completion problem, and understanding ability. Thus the inquiry learning model is effective for practicing students' historical thinking skills. The same results are shown by research conducted by Ilmiawan (2016) [34] that inquiry model learning can foster students' historical thinking skills [35].

#### **4. Conclusion**

The history learning e-module of the inquiry model is effectively used in the history learning process. This can be seen from the results of the effectiveness of the N-gain test, where there is an increase in the pretest and posttest scores of students found in the experimental class. The improvement can be seen from the N-gain value of the experimental class is greater than the control class that only uses a conventional module.

The results of the study imply that the learning history e-module of the inquiry model that has been developed can foster five indicators of students' historical thinking skills, namely chronological thinking, historical comprehension, historical analysis and interpretation, historical research capabilities, and historical issues-analysis and decision making. With the innovations in learning history can change the negative views of students about history that only learns the past and tends to be boring, become interested and interesting in learning history.

## References

- [1] I. M. Suarsana, "Development of Problem-Oriented E-Modules to Improve Student Critical Thinking Skills," *JPI (Jurnal Pendidik. Indones.,* vol. 2, no. 2, pp. 264–276, 2013, doi: 10.23887/jpi-undiksha.v2i2.2171.
- [2] D. Irawan, O. Ofianto, and A. Aisiah, "Development of Digital Game-Based Learning Media (DGBL) to Improve Students' Chronological Thinking Ability in Learning History in Senior High School," *J. Halaqah,* vol. 1, no. 1, pp. 13–31, 2019, doi: <https://doi.org/10.5281/zenodo.3237232>.
- [3] S. M. Waring and K. S. Robinson, "Developing Critical and Historical Thinking Skills in Middle Grades Social Studies," *Middle Sch. J.,* 2010, doi: 10.1080/00940771.2010.11461747.
- [4] A. Aardema, "Active Historical Thinking: designing learning activities to stimulate domain specific thinking.," *Teach. Hist.,* vol. 1, no. 139, pp. 52–59, 2010.
- [5] M. Merkt, M. Werner, and W. Wagner, "Historical thinking skills and mastery of multiple document tasks," *Learn. Individ. Differ.,* vol. 54, pp. 135–148, 2017, doi: 10.1016/j.lindif.2017.01.021.
- [6] D. L. Trombino and L. Bol, "Historical Thinking," in *Encyclopedia of the Sciences of Learning,* 2012.
- [7] C. W. Berg and T. M. Christou, *The Palgrave Handbook of History and Social Studies Education.* Minneapolis USA: Walden University, 2020.
- [8] M. Abror, N. Suryani, and D. T. Ardianto, "Digital Flipbook Empowerment as A Development Means for History Learning Media," *JPI J. Pendidik. Indones.,* vol. 8, no. 2, pp. 266–273, 2019, doi: 10.23887/jpi-undiksha.v8i2.24122.
- [9] E. G. Poitras and S. P. Lajoie, "Developing an agent-based adaptive system for scaffolding self-regulated inquiry learning in history education," *Educ. Technol. Res. Dev.,* vol. 2, no. 62, pp. 335–366, 2014, doi: 10.1007/s11423-014-9338-5.
- [10] A. Purwanto, M. Nurjayadi, R. Suluya, and I. Z. Ichsan, "EM-SETS: An Integrated e-module of Environmental Education and Technology in Natural Science Learning," *Int. J. Adv. Sci. Technol.,* vol. 29, no. 3, pp. 7014–7025, 2020, [Online]. Available: <http://sersec.org/journals/index.php/IJAST/article/view/7561>.
- [11] D. S. Sitorus, S. Siswandari, and K. Kristiani, "The Effectiveness of Accounting E-Module Integrated With Character Value to Improve Students' Learning Outcomes and Honesty," *Cakrawala Pendidik.,* vol. 38, no. 1, pp. 120–129, 2019, doi: 10.21831/cp.v38i1.20878.
- [12] M. E. W. Dankbaar et al., "Comparative effectiveness of a serious game and an e-module to support patient safety knowledge and awareness," *BMC Med. Educ.,* vol. 17, no. 1, pp. 30–40, 2017, doi: 10.1186/s12909-016-0836-5.
- [13] A. Prastowo, *Creative Guide to Making Innovative Teaching Materials (Panduan Kreatif Membuat Bahan Ajar Inovatif).* Yogyakarta: Diva Press, 2015.
- [14] B. Tompo, A. Ahmad, and M. Muris, "The development of discovery-inquiry learning model to reduce the science misconceptions of junior high school students," *Int. J. Environ. Sci. Educ.,* vol. 11, no. 12, pp. 5676–5686, 2016.
- [15] T. I. B. Al-Tabany, *Designing innovative, progressive, and contextual learning models (Mendesain model pembelajaran inovatif, progresif, dan kontekstual).*

- Jakarta: Prenadamedia Group, 2017.
- [16] H. P. N. Putro, "Historical Learning Model for Increasing Historical Awareness Through Inquiry Approaches (Model Pembelajaran Sejarah Untuk Meningkatkan Kesadaran Sejarah Melalui Pendekatan Inkuiri)," *Paramita Hist. Stud. J.*, vol. 22, no. 2, pp. 207–216, 2012, doi: 10.15294/paramita.v22i2.2121.
- [17] A. Afandi, "Improving the Quality of Learning East Asian History Through the Application of Inquiry Methods in the Department of Historical Education FKIP UM Mataram (Meningkatkan Kualitas Pembelajaran Sejarah Asia Timur Melalui Penerapan Metode Inkuiri di Jurusan Pe)," *Paedagoria | FKIP UMMat*, vol. 6, no. 1, pp. 78–88, 2018, doi: 10.31764/paedagoria.v6i1.145.
- [18] M. Muhammad, "Train Students' Historical Thinking with Inquiry Training Learning Models (Melatih Siswa Berpikir Historis Dengan Model Pembelajaran Inquiry Training (Latihan Penelitian))," *EdArXiv*, 2020, doi: 10.35542/osf.io/7psj8.
- [19] O. Ofianto, "Model Learning Continuum Keterampilan Berpikir Historis (Historical Thinking) Pembelajaran Sejarah SMA (Learning Continuum Model Historical Thinking Skills (Historical Thinking) High School History Learning)," *Diakronika*, 2018, doi: 10.24036/diakronika/vol17-iss2/27.
- [20] Ibrahim, "Application of Inquiry Model in Indonesian History Subjects on the Material of the Impact of Japanese Occupation to Indonesia to Increase Student Activities in State Vocational High School 1 Tarakan, North Kalimantan (Penerapan Model Inkuiri Pada Mata Pela)," *J. Borneo Hum.*, vol. 3, no. 1, pp. 1–8, 2020, doi: 10.35334/borneo\_humaniora.v3i1.1279.
- [21] E. P. Dewi, A. Suyatna, A. Abdurrahman, and C. Ertikanto, "Effectiveness Module with Model inquiry to Grow Science Process Skills Students on Materials Heat (Efektivitas Modul dengan Model Inkuiri untuk Menumbuhkan Keterampilan Proses Sains Siswa pada Materi Kalor)," *Tadris J. Kegur. dan Ilmu Tarb.*, vol. 2, no. 2, pp. 105–110, 2017, doi: 10.24042/tadris.v2i2.1901.
- [22] M. L. Maciejewski, "Quasi-experimental design," *Biostat. Epidemiol.*, vol. 4, no. 1, pp. 38–47, 2020, doi: 10.1080/24709360.2018.1477468.
- [23] P. Setyosari, "Educational Research & Development Methods (Metode Penelitian Pendidikan & Pengembangan)," in Jakarta: Prenadamedia Group, 2016.
- [24] R. Gersten, L. S. Fuchs, D. Compton, M. Coyne, C. Greenwood, and M. S. Innocenti, "Quality indicators for group experimental and quasi-experimental research in special education," *Exceptional Children*. 2005, doi: 10.1177/001440290507100202.
- [25] R. R. Hake, "Analyzing change/gain scores," Unpubl. URL <http://www.physics.indiana.edu/~sdi/AnalyzingChange-Gain.pdf>, 1999.
- [26] D. E. Meltzer, "The relationship between mathematics preparation and conceptual learning gains in physics: A possible 'hidden variable' in diagnostic pretest scores," *Am. J. Phys.*, pp. 1259–1268, 2002, doi: 10.1119/1.1514215.
- [27] M. C. Dara and E. Setiawati, "The Influence of Media Timeline Use on Chronological Thinking Ability in Learning History at SMAN 2 Metro (Pengaruh Penggunaan Media Timeline Terhadap Kemampuan Berpikir Kronologis Pembelajaran Sejarah di SMAN 2 Metro)," *Historia Santiago.*, vol. 5, no. 1, pp. 55–76, 2017, doi: 10.24127/hj.v5i1.733.
- [28] E. Eriany, "The Use of Creative and Productive Methods to Enhance Historical Learning Outcomes in the Subject of How to Think History of Class X MIA 1 Students of SMAN 11 Pekanbaru (Penggunaan Metode Kreatif dan Produktif Untuk Meningkatkan Hasil Belajar Sejarah Pada)," *J. PAJAR (Pendidikan dan Pengajaran)*, vol. 3, no. 2, pp. 376–382, 2019, doi: 10.33578/pjr.v3i2.6826.
- [29] H. Susanto, *Around Learning History (Issues, Ideas and Learning Strategies) (Seputar Pembelajaran Sejarah (Isu, Gagasan dan Strategi Pembelajaran))*. Yogyakarta: Aswaja Pressindo, 2014.

- [30] Hudaidah, "Historical Thinking, The Main Thinking Skills For History Students (Historical Thinking, Keterampilan Berpikir Utama Bagi Mahasiswa Sejarah)," *Criksetra J. Pendidik. Sej.*, vol. 3, no. 1, pp. 47–55, 2014, doi: 10.36706/jc.v3i1.4755.
- [31] S. H. Hasan, *Indonesian History Education: Issues in Ideas and Learning (Pendidikan Sejarah Indonesia: Isu dalam Ide dan Pembelajaran)*. Bandung: Penerbit Rizky, 2012.
- [32] S. Kochhar, *Teaching of History (Pembelajaran Sejarah)*. Jakarta: PT. Grasindo, 2008.
- [33] I. Bilgin, "The effects of guided inquiry instruction incorporating a cooperative learning approach on university students' achievement of acid and bases concepts and attitude toward guided inquiry instruction," *Sci. Res. Essays*, vol. 4, no. 10, pp. 1038–1046, 2009.
- [34] Ilmiawan, "Learning History Based on Bima Historical Sites Using Inquiry Methods to Improve Understanding of Local History (Pembelajaran Sejarah Berbasis Situs-Situs Sejarah Bima dengan Menggunakan Metode Inkuiri untuk Meningkatkan Pemahaman Sejarah Lokal)," *J. Ilm. Mandala Educ.*, vol. 2, no. 1, pp. 97–106, 2016.
- [35] E. Suparjan, *Historical Education to Shape the Character of the Nation (Pendidikan Sejarah untuk Membentuk Karakter Bangsa)*. Yogyakarta: Deepublish, 2019.