



**University of Jember**  
Faculty of Teacher Training and Education



UNIVERSITAS  
JEMBER

# PROCEEDINGS

## 3rd ICEGE 2020

The Third International Conference on Environmental Geography  
and Geography Education

September 12<sup>th</sup> - 13<sup>th</sup>, 2020

at Faculty of Teacher Training and Education, University of Jember

PAPER • OPEN ACCESS

## Preface

To cite this article: 2021 *IOP Conf. Ser.: Earth Environ. Sci.* **747** 011001

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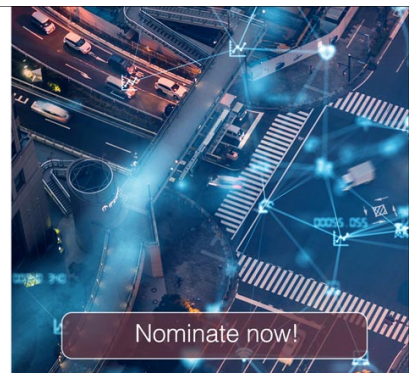
### The Electrochemical Society

Advancing solid state & electrochemical science & technology

The ECS is seeking candidates to serve as the **Founding Editor-in-Chief (EIC) of ECS Sensors Plus**, a journal in the process of being launched in 2021

The goal of ECS Sensors Plus, as a one-stop shop journal for sensors, is to advance the fundamental science and understanding of sensors and detection technologies for efficient monitoring and control of industrial processes and the environment, and improving quality of life and human health.

*Nomination submission begins: May 18, 2021*



The Third International Conference on Environmental Geography and Geography Education (ICEGE) 2020

## **Sumardi**

Editor in Chief of International Conference on Environmental Geography and Geography Education 2020

E-mail: sumardi.fkip@unej.ac.id

We would like to express our gratitude to all participants joining “The International Conference on Environmental Geography and Geography Education” (ICEGE). The 3<sup>rd</sup> International conference held by the Department of Social Science Education held by FKIP-University of Jember on 12-13 September 2020. The participants of this ICEGE 2020 are research students, academicians and researchers, scholars, scientist, teachers and practitioners from many countries.

Due to Covid-19, this conference was held in dual-mode, namely online and face to face. For those invited speakers from abroad who have travel restrictions presented their research topics through zoom cloud meeting. Likewise, participants who stay outside Jember city joined the conference virtually. Meanwhile, participants from within Jember city joined conference in person by complying the Covid-19 protocol.

Two hundred forty-eight participants attended this conference. The number of submitted papers were 219 and papers sent to the reviewers were 198. Two reviewers reviewed one paper. Each reviewer reviewed maximum 8 papers. Based on reviewer recommendations, finally the number of accepted papers is 130. Thus, the acceptance rate is 59,4 %.

In the plenary season, each invited speaker presented their presentations for 1 hour and 15 minutes for Q/A session. In the parallel session, each participant made the presentation for maximum 15 minutes and 5 minutes for Q/A session. The technology used in the parallel session is zoom cloud meeting with 13 breakout rooms.

This conference becomes a dissemination forum for scientists working on theoretical and empirical research of environmental geography, transportation geography, geography education, social science and its application. This conference's mission is to become an annual international forum in the future, where civil society organization and representative research students, academics and researchers, scholars, scientists, teachers, and practitioners from all over the world could meet and exchange an idea to share and discuss about research. The aim of the second conference is to present and discuss the latest research that contributes to the new ontological, epistemological and axiological knowledge and



to a better understanding in the area as follows:(1) Environmental Geography; (2) Geography Information System and Remote Sensing; (3) Geomorphology; (4) Natural Disaster; (5) Economics; (6) History; (7) Education; (8) Humanities; (9) Social Sciences and (10) Global Science and Studies.

On behalf of the organizing committee, finally we gratefully acknowledge the support from the FKIP-University of Jember of this conference. We would also like to extend our thanks to all lovely participants who have been joining this unforgettable and valuable event.

Assoc. Prof. Dr. Sumardi, M.Hum



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The committees of the Third International Conference on Environmental Geography and Geography Education would like to express gratitude to all Committees for the volunteering support and contribution in the editing and reviewing process.

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## Peer review statement

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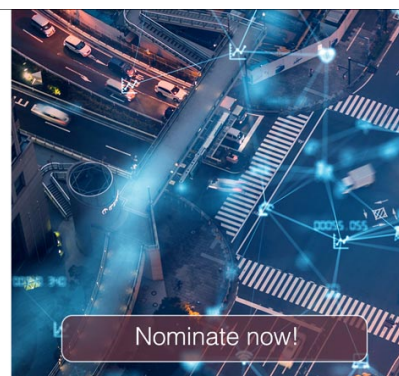
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*Nomination submission begins: May 18, 2021*



## Peer review statement

All papers published in this volume of IOP Conference Series: Earth and Environmental Science have been peer reviewed through processes administered by the Editors. Reviews were conducted by expert referees to the professional and scientific standards expected of a proceedings journal published by IOP Publishing.

- **Type of peer review:** Double-blind review. The authors and the reviewers do not know each other. The managing editor send the papers to the reviewers by hiding the authors' name and their affiliation.
- **Describe criteria used by Reviewers when accepting/declining papers. Was there the opportunity to resubmit articles after revisions?** There were 13 aspects of assessment for accepting/declining papers, i.e. Clarity of abstract, Significance of research, Sufficiency state of the art, Contribution to the field (novelty), Research objective, Appropriateness of the research method, Relevance and clarity of drawings, graphs and tables, Experimental/evidential support, Quality of data or findings, Discussion and conclusions, Direction for future research and recommendations, Clarity of English, Writing style (according to EES format). There are no opportunities to resubmit papers after rejection. For the revised papers regarding to reviewer comments, they should resubmit their papers.
- **Conference submission management system:**  
<https://easychair.org/conferences/?conf=icege2020>
- **Number of submissions received:** 219
- **Number of submissions sent for review:** 198
- **Number of submissions accepted:** 130
- **Acceptance Rate (Number of Submissions Accepted / Number of Submissions Received X 100):** 59,4 %
- **Average number of reviewers per paper:** 2
- **Total number of reviewers involved:** 50
- **Any additional info on review process (ie. plagiarism check system):** We used TURNITIN software to check the plagiarism issue during the review process.



- **Contact person for queries:**  
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Universitas Jember, Indonesia  
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Volume 747

2021

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3rd International Conference on Environmental Geography and Geography Education, 12 September 2020, East Java, Indonesia

Accepted papers received: 12 April 2021

Published online: 12 May 2021

Open all abstracts

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### Papers

**OPEN ACCESS** Coastal Community Resilience Planning Toward Disaster: A Case Study on Coastal Area in Malang Regency, East Java, Indonesia 012001

Coastal Community Resilience Planning Toward Disaster: A Case Study on Coastal Area in Malang Regency, East Java, Indonesia

L Y Irawan, Sumarmi, S Bachri, M M Rosbella Devy, R Faizal and W E Prasetyo

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**OPEN ACCESS** Landslides susceptibility mapping based on geospatial data and geomorphic attributes (a case study: Pacet, Mojokerto, East Java) 012002

Landslides susceptibility mapping based on geospatial data and geomorphic attributes (a case study: Pacet, Mojokerto, East Java)


L Y Irawan, Sumarmi, S Bachri, D Panoto, I H Pradana and R Faizal

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**OPEN ACCESS** Strategic Value of Marble Mine Management for Community Economic Improvement and Challenges Keeping Sustainable Environmental Support in Tulungagung Regency 012003

Strategic Value of Marble Mine Management for Community Economic Improvement and Challenges Keeping Sustainable Environmental Support in Tulungagung Regency

Sumarmi and N Wahyuningtyas

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**OPEN ACCESS** Sub-watershed prioritization inferred from geomorphometric and landuse/landcover datasets in Sari Watershed, Sumbawa Island, Indonesia 012004

Sub-watershed prioritization inferred from geomorphometric and landuse/landcover datasets in Sari Watershed, Sumbawa Island, Indonesia

O Setiawan and R Nandini

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**OPEN ACCESS** Forming spatial thinking skills of social studies students in phenomenon analysis geosphere through the Geographic Information System (GIS) 012005

Forming spatial thinking skills of social studies students in phenomenon analysis geosphere through the Geographic Information System (GIS)

N Wahyuningtyas, N Laila and F Andini

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**OPEN ACCESS** Ecotourism Development Strategies of Pulau Merah Beach, Banyuwangi, Indonesia 012006

Ecotourism Development Strategies of Pulau Merah Beach, Banyuwangi, Indonesia

Sumarmi, S Bachri, L Y Irawan, A W Sholeha and M Aliman

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**OPEN ACCESS** Development of Supplementary Contextual Teaching Materials Based on Ecotourism and Natural Resource Management 012007

Development of Supplementary Contextual Teaching Materials Based on Ecotourism and Natural Resource Management

A Z Ensiyawati, Sumarmi and I K Astina

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**OPEN ACCESS** The sustainability of pancasila values on improving the human resources of Indonesian students in Indonesian Saudi Arabian schools 012008

The sustainability of pancasila values on improving the human resources of Indonesian students in Indonesian Saudi Arabian schools

A Masrukhin, R Anwar and H Sriyanto

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**OPEN ACCESS** Pancasila and Saving Lifestyle: a Case Study in Bina Nusantara University Jakarta Students 012009

Pancasila and Saving Lifestyle: a Case Study in Bina Nusantara University Jakarta Students

P H Witono, A Prasojo and C Megawati

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Local history online learning strategies: teacher's perception

R Gunawan and H Rachmah

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Geographical and Historical Potential of Merjosari Water Site, Malang City and Its Utilization as Learning Resources

W D Sulisty, M N L Khakim, N Jauhari and A D Setyawan

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**OPEN ACCESS** The perspective of geography education students on the implementation of online learning during covid-19 pandemic 012012

The perspective of geography education students on the implementation of online learning during covid-19 pandemic

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Locality Development Model: Analysis on Community Strength in Planning Business Capacity Development in Panyabangan Village Based on Local Potentials Historical Buildings of Bendungan Lama Pamarayan

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Ecological considerations for the placement of the "Candi Negeri Baru" site in 14 AD in Ketapang, West Kalimantan

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The Enrichment of Historical Learning Material Through Tracking The Role of Minority Group in The Crosses of Indonesia's Struggle For Independence

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Empowerment of Housewives in Antirogo Village, District of Jember Through Training on Production of Cassava Rengginang

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Socio-Edu -Eco-Tourism: An Integrated History Learning Design to Foster Entrepreneurship Awareness

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Google Classroom as the Online Learning Platform During he Covid-19 Pandemic for the Management Business Student at SMK Negeri 1 Lumajang

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The Effect of Online Learning and Parental Guidance Towards the Result of XI Social Students' Learning on Geography Course at SMAN 5 Jember

































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<p><b>OPEN ACCESS</b> Learning environment technology-based in improving students' independent learning L N Rufaidah, N Umamah, Sumardi, Marjono and R A Surya</p> <p>+ Open abstract    View article    PDF</p>	012056
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<p><b>OPEN ACCESS</b> Schooly effectivity as history learning environment during industrial revolution 4.0 era S F Farizi, N Umamah, Sumardi, Marjono and R A Surya</p> <p>+ Open abstract    View article    PDF</p>	012058
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<p><b>OPEN ACCESS</b> Vegetation index-based biomass model and Land Surface Temperature (LST) from urban green spaces in Bandung City derived from multispectral imageries A L Suti, I P Ash Shidiq, Rokhmatulloh and A Wibowo</p> <p>+ Open abstract    View article    PDF</p>	012060
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M A R Palupi, Sumarjono, K Swastika, M. Na'im and A R Pratama

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Development of e-modules based on science technology society integrated life based learning in history learning

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R Ma'rifatullah, N Umamah, Marjono, Sumardi and RA Surya

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Megalithic Culture at the Maskuning Kulon Site Pujer Bondowoso

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L Wijayanti, K Swastika, Sumarjono, M Na'im and A R Pratama

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Acculturation In The Sugar Factory As a Tourist Destination (Ethnography Study At The Rejo Agung Baru Sugar Factory, Madiun, East Java, Indonesia)

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## Development of e-modules based on science technology society integrated life based learning in history learning

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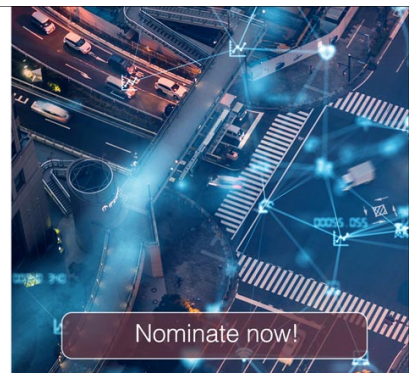
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## Development of e-modules based on science technology society integrated life based learning in history learning

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**Abstract.** Science and technology development as well as globalization stream bring shifting towards education field. The 21<sup>st</sup> learning paradigm put students as agents of change. Therefore, students involvement in solving social issues is indeed required. However, recent study indicated that technology has drawn students became rather individualistic and less socialize. Science Technology Society (TST) Life Based Learning integrated has become alternative solution in improving students' capacity and problem solving towards education gap issues upon society needs. STS integrates science and technology to be utilized by society. Learning activities involving students actively in learning process of society environment. This research and development study attempts to generate education product in form of electronic module based Science Tecnology Society integrated Life Based Learning which was being validated by experts and improves history learning. This study engaged ADDIE model. Data collection performed observation, questionnaire, and interview. Study sample were three SMAN for observation and one school for trial, three history teachers, and 95 students. Research result of e-module development indicate content expert validation obtains 82% categorized as eligible, language expert validation expert obtains 94% categorized as very eligible, design validation expert obtains 91,6% categorized as very eligible and users test score is 83,2 categorized very high. Based on this result, electronic module based Science Technology Society integrated Life Based Learning is appropriate and effective as learning source in history subject.

### 1. Introduction

The development of science and technology and globalization steam have an effect in terms of education [1] A new paradigm of 21st century learning has emerged, which focuses on developing an innovative framework of students thinking [2] [3]. Students within 21st century have mastered information, media and technology upon their daily lives. Thus, it is necessary to develop social skills, which integrated with students emotional competence in order to solve the problems in their surroundings [4] [5] [6]. When students learn engaging technology, in a meaningful learning environment setting, they do not learn from technology, but learn using technology [7]. This is the paradigm of 21st century learning.

According to Nichols (2017), four main principles in 21st century learning are *instruction should be student-centered, education should be collaborative, learning with context, and schools should be integrated with society* [8]. In addition, education must be able to adapt to the dynamics developing within society, especially the demands and needs of the community [9]. 21st century learning is oriented towards lifestyle, thinking tools, learning research and digital knowledge work. The way it works requires the ability to collaborate, strengthen thinking tools, the ability to use technology, digital tools, and services, and a digital lifestyle [10] [11]. Covid 19 pandemic has forced all many people to immediately adapt and customize into a digital lifestyle. Thus, educators as the main actors



towards education are expected to immediately optimize their potential as that they need to be adaptive to digitalization.

Research results attempted by Wulandari, Umamah, and Sumardi 2017 reveals several issues in history learning, namely that students are not actively participate in obtaining various information to solve problems in learning history, as students considered history as less attractive to students [12] [13] [14]. Other research from Naim and Sumardi 2017 Historical learning, could not be adaptive towards the demands of current times, thus it makes students bored. The ideal history learning facilitates students to achieve the goals of learning history optimally [15]. Optimal history learning deals with aspects that can encourage and motivate students.

The research result conducted by Umamah 2017 regarding technology utilization in the classroom, students download material through 64% websites, 50% DVDs, smartboards, 46% digital textbooks, 45% online videos, 42% learning websites, 81% of them self-study, 81% of digital textbooks, materials studied through websites 81%, 80% of online videos, 79% of learning game-based systems, 77% of textbooks, 74% of social media, Skype 73%, Poscast 72 %, DVD / Movie 61% [16]. Based on the results of this study, it shows that effective learning demanded by Generation Z is learning that could utilize technological advances and allows students to learn effectively, adaptively, and innovatively. The results of the teacher performance analysis questionnaire could identify the needs analysis and gaps related to history learning at SMAN 2 Probolinggo, SMAN 3 Probolinggo, and SMAN 4 Probolinggo, which concludes that innovative learning facilities are needed, one of which is the need to develop e-modules.

According on description mentioned above and the results of the performance analysis of educators, it indicates a gap between the students needs who were categorized Z generation and the ability of educators regarding the development of teaching materials that are in accordance with the learning objectives. Hence, it is necessary to develop an e-module to facilitate students. E-module is a set of planned learning and is employed to assist students learn independently, and be able achieve learning goals. [16] The development of this E-module engages *Science Technology Society* model. *Science Technology Society* is being applied in educational programs around the world, since it allows to prepare students in participating effectively upon activities in a technology-oriented environment [17]. Keith Courville (2009) explains that *Science Technology Society* shows greater interest in implementing learning with more positive attitudes [18]. Another study from Nasser Mansour (2009) states that the *Science Technology Society* model is the preferred model for educators as it influences social behavior in the classroom [19]. This learning model is expected to be able to answer the demands of the 4.0 industrial revolution.

The industrial revolution 4.0 demands revitalization [20]. 2013 curriculum education obtains objectives in building character. E-module was developed is integrated with *Life Based Learning*. *Life Based Learning* that accommodates all forms of learning resources that allow to increase opportunities to increase abilities [21].

Based on the description above, E-Module based on *Science Technology Society* integrated with *Life Based Learning* is very necessary to be developed as a medium for learning history and it is expected that this media could increase the effectiveness of history learning. Research and development of E-Module based on *Science Technology Society* integrated *Life Based Learning* has the following objectives: (1) Generate validated products; (2) Generate products to improve the history learning effectiveness.

## 2. Methods

This research is a research & development using the ADDIE model developed by Branch, 2009. The ADDIE model consists of (1) Analyze; (2) Design; (3) Develop; (4) Implement; (5) Evaluate. The procedure to be carried out by the researcher is presented in the following figure.

This research and development apart from producing products, also examines the effectiveness of the products generated [22]. Data collection in this study was using documentation, observation, questionnaires, interviews, and tests. Research subjects were students and high school history educators of Probolinggo city.

Data analysis employed qualitative data analysis techniques and quantitative analysis techniques. Qualitative data analysis aims to analyze data based observations, questionnaires, expert advice and documentation. Meanwhile, quantitative data analysis aims to define the quality of the developed modules based on experts validation and users and examine its effectiveness

Expert validation data analysis was performed engaging percentage data analysis with following formula.

$$p = \frac{\sum x}{\sum xi} \times 100\%$$

Details:

P : percentage

$\sum x$  : total number of respondents answers

$\sum xi$  : total ideal score of 1 item

The calculating result of questionnaire percentage then being analyzed through the product eligibility criteria. The following table is the product eligibility.

**Table 1.** Qualification data analysis

Achievement Level	Qualification	Information
85% - 100%	Very Good	No need to revise
75% - 84%	Good	No need to revise
65% - 74%	Enough	Revised
55% - 64%	Less	Revised
0 - 54%	Very Less	Revised

Source: Arikunto, 2008:216

Effectiveness data using E-Module E-Module Development Based on Science Technology Society Integrated Life Based Learning in History Subject for Class XI Senior High School was obtained through the results of students' pre-test and post-test. Then the calculation of its effectiveness was conducted using the relative effectiveness (ER) formula as follows.

$$ER = \frac{Mx2 - Mx1}{\left(\frac{Mx1 + Mx2}{2}\right)} \times 100\%$$

Details:

ER = relative effectiveness level

Mx1 = mean at the mean class value after the action

Mx1 = mean at the mean class value before the action

The analysis result of relative effectiveness then being interpreted based on the following criteria:

**Table 2.** Relative Effectiveness Table

relative effectiveness test results	Effectiveness category
91% - 100%	Very high effectiveness
61% - 90%	High effectiveness

31% - 60%	Medium effectiveness
11% - 30%	Low effectiveness
0% - 10%	Very low effectiveness

Source: Sugiyono, 2014:94-95

### 3. Results and Discussion

The result of this research and development is a draft of E-Module Based on Science Technology Society Integrated Life Based Learning in History Subject for Class XI SMA, which is completed for expert validation and being examined for its effectiveness. The following is an explanation of the activities performed within research, namely: (1) the development process, (2) expert validation, (3) testing and effectiveness testing.

#### 3.1 E-Module Draft Development Process

The process of development a draft is an adjustment to the development model used, namely the ADDIE model. Based on this model, the steps were taken include: (1) Analyze, (2) Design, (3) Develop, (4) Implement, and (5) Evaluate [25]. The following steps are carried out in development research described in table 1:

**Tabel 3.** Development Steps

Steps	Work Log
Analyze	The researcher conducts an analysis; Validates performance gaps, defines instructional goals, analyzes students, resources required, recommends potential delivery systems, writes project management plans at Problinggo High School
Design	Researcher Conducts a task inventory, writes performance goals, generates test strategies, calculates investment.
Development	Researcher generates the content, selects and develops media, formulates guidelines for students, develops guidelines for educators, conducts formative revisions, conducts trials.
Implementation	Researcher prepares educators and students.
Evaluation	Researcher determines evaluation criteria, selects evaluation tools, conducts evaluations

#### 3.2 Expert Validation

Expert validation is a feasibility test related to the material, language, and learning design within E-Module Based on the Integrated Science Technology Society Life Based Learning in History Subjects in Class XI SMA.

The following description explains the analysis content expert validation data, linguist validation, and learning design expert validation of electronic module development products based on Integrated Science Technology Society Life Based Learning.

### 3.2.1 Content expert validator

The content expert validator was Mr. Suharto, S.S., M.A. The results of the data analysis obtained a percentage value of 82%, which was categorized as "good" and "does not need revision". Then the validator provides product comments, namely: The E-Module is good, it can be continued as a learning material about the history of revolution in various countries, it is good and appropriate

### 3.2.2 Linguist validation

The linguist validation was carried out by Mrs. Anita Widjianti, S.S., M.Hum. The results of the analysis obtained a percentage value of 94%, which was categorized as "very good" and "No Need for Revision". The comments and suggestions given are that the product is suitable for use as a high school learning resource.

### 3.2.3 Design expert validation

The learning design expert validation was carried out by Mr. Yanuar Nurdiansyah., S.T., M.CS. The results of the design expert validation obtained a percentage value of 91.6%, which is categorized as "Very Good" and "No Need for Revision" qualifications. The comments and suggestions given are that the product is good and continue to be tested.

## 3.3 Product Trials

The trial of E-Module products based on the Integrated Science Technology Society Life Based Learning in the History Subject of Class XI SMA was performed on research subjects, namely educators as users and students in small group trials.

### 3.3.1 The User Test

The user test was attempted in a high school with history educator, namely Arief Muhammad Ramadhani, S.Pd. The results of the user test data analysis obtained a percentage value of 83.2% which is categorized as "Very Good" and "No Need for Revision". The following is the user trial assessment table

**Table 4.** User Trial Assessments

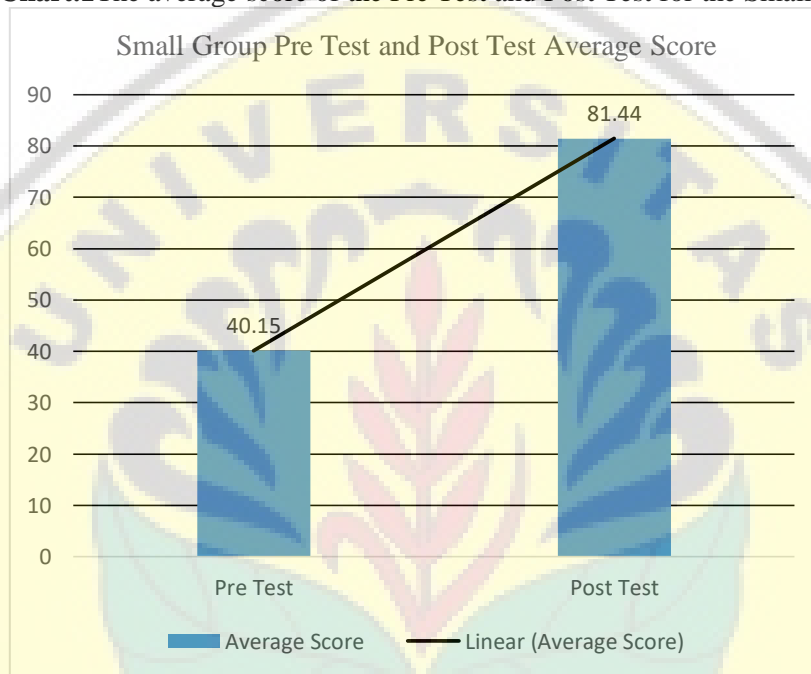
No.	Assessment Aspects	Rating Score				
		1	2	3	4	5
1.	The accuracy of the title with the material being discussed					✓
2.	The accuracy of the material with the learning objectives					✓
3.	Chronology of stories					✓
4.	The suitability of the image illustration with the material				✓	
5.	The accuracy of the grammar used				✓	
6.	E-module design					✓
7.	Selection of writing fonts					✓
8.	Selection of font size					✓
9.	The ability to provide important and new information				✓	
<b>Total Score =</b>						<b>42</b>

### 3.3.2 Small Group Trial

The small group test involved 9 class X students in each school who were the research subjects, namely students at SMAN 3 Probolinggo. At this stage, researchers performed learning with E-Module Based on Science Technology Society Integrated Life Based Learning as a learning resource and are focused on determining the level of effectiveness of E-module products. The results of the small group test obtained a recapitulation of the evaluation values pre test and post test.

The value of the Pre Test and Post Test that students have from small groups can be seen from the learning results obtained. The trial values are presented in the following diagram:

**Bar Chart.1**The average score of the Pre Test and Post Test for the Small Group



#### 3.3.2.1 Effectiveness Test

Data analysis was conducted to determine effectiveness increase through small group trials. Based on the bar chart above, it can be observed the increase of students learning outcomes after applying using e-modules based on the Science Technology Society integrated Life Based Learning in history subjects in class XI. The following shows the paired statistical data, paired correlation, paired sample t-test and normality test based on the values of the pre-test and post-test in small group subjects.

**Table 5.**Result Paired Statistic

Value	Mean	Std. Deviation
Pre Test	40,15	6,37
Post Test	81,44	3,76

Based on table 3, it is recognized that the average value of the Pre Test is 40.15 (Std. Deviation = 6.37) and the Post Test is 81.44 (Std. Deviation = 3.76). The mean value of the Post Test is greater than the value of the Pre Test in small group subjects. Thus, it can be concluded that there has been an increase in the knowledge value of students (in small groups) after using e-modules based on the Science Technology Society integrated Life Based Learning in history subjects in class XI.



**Table 6.** Test results Paired Correlation

Total N	Correlation	Value Sig
9	0,564	0,114

Table 4 shows a significance level of 0.114 (greater than the threshold value = 0.05). Thus, there is no significant correlation between the pre-test and post-test scores in the small group at the 5% confidence level (0.39 > 0.05).

**Table 7.** Results of Paired Sample T-Test

Value t	Df	Value Sig.
41,28	8	0,00

Based on table 5, it reveals that the t test value is 41.28 (df = 8) and a significance value of 0.00. The significance number is smaller than the confidence level threshold value of 5% (0.00 < 0.05). Thus, it can be concluded that there is a significant difference between the Pre Test and Post Test scores in small group subjects.

Based on table 5, the results of the pre-test and post-test score average, then the effectiveness is calculated using the Relative Effectiveness (ER) formula which analysis is as follows.

$$ER = \frac{81.44 - 40.15}{\left(\frac{40.15 + 81.44}{2}\right)} \times 100\% = 67.91\%$$

Based on the results of the above analysis, the value was 67.91%. Thus, by being consulted on the relative effectiveness test criteria, a product qualification was obtained in the "high effectiveness" category.

### 3.3.2.2 Normality test

In this study, the normality test used the Shapiro-Wilk test. Shapiro-Wilk Test being used since the samples in the small group trial were 9. Hence, the Shapiro-Wilk test is more suitable for small sample sizes (<50 samples) (Balogun, 2015; Laerd Statistics, 2018; Shapiro & Wilk, 1965). The results of the small group normality test can be seen in the table below.

**Table 8.** The Results of Test of Normality

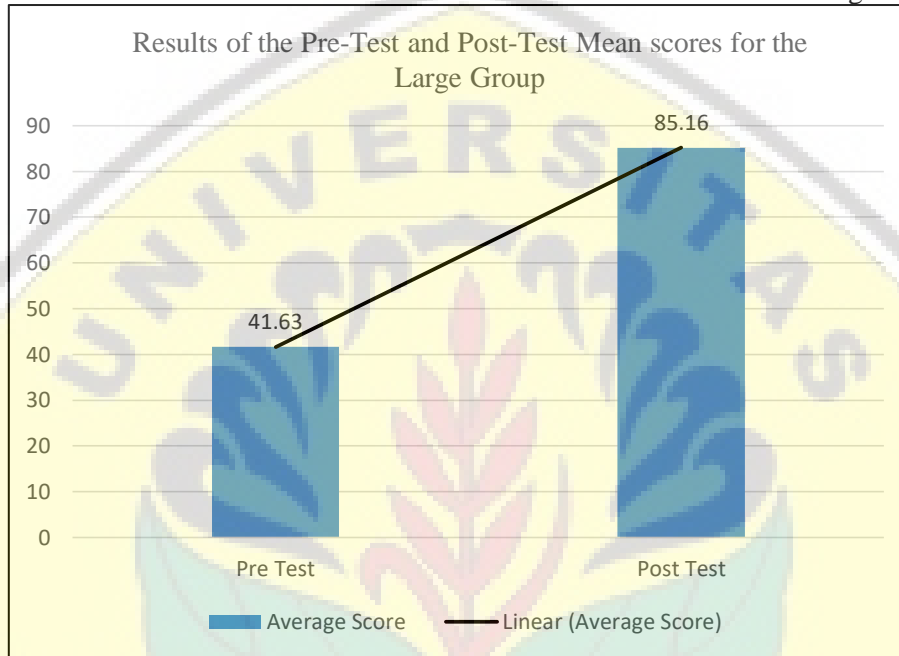
	Shapiro-Wilk		
	Statistic	df	Sig.
<i>Pre Test</i>	,911	9	,322
<i>Post Test</i>	,900	9	,254

Based on table 6, it is found that the normality value of the Pre Tests is significant, 322 (df = 9), and the normality value of the Post Test is significance of 0.254 (df = 9). Explain the significance number greater than the threshold value of the normal level of 0.05 (with details = the significance number > 0.05). Thus, it can be concluded that the Pre Test and Post Test data are normally distributed.

### 3.3.3 Large Group Trials

The large group effectiveness test in this study was conducted on 34 SMA class XI IPS students at SMAN 3 Probolinggo. At this stage, researchers carry out learning using E-Module Based on Science Technology Society Integrated Life Based Learning as a learning resource, which is focused on knowing the level of product effectiveness in learning that is reviewed through the value data of student learning outcomes. The trial results obtained a recapitulation of the pre-test and post-test evaluation values which are presented in the bar chart as follows.

**Bar Chart2.** Results of the Pre-Test and Post-Test Mean scores for the Large Group



#### 3.3.3.1 Effectiveness test

Data analysis was carried out to determine the effectiveness level of students' history learning through large group trials. Based on the bar chart above, it can be seen the increase of students learning after engaging e-modules based on the Science Technology Society integrated Life Based Learning in History subjects in class XI. The following shows the paired statistical data, paired correlation and paired sample t-test based on the pre-test and post-test values for small group subjects.

**Table 9.** The Results of Paired Statistic

Value	Mean	Std. Deviation
<i>Pre Test</i>	41,63	5,98
<i>Post Test</i>	85,16	4,73

Based on table 7, it is known that the average value of the Pre Test is 41.63 (Std. Deviation = 5.98) and the Post Test is 85.16 (Std. Deviation = 4.73). The average Post Test score is greater than the Pre Test value in large group subjects. Thus, it can be concluded that there has been an increase in the knowledge value of students (in large groups) after using e-modules based on the Science Technology Society integrated Life Based Learning in History subjects in class XI.

**Table 10.** The Results of Paired Correlation

Value N	Correlation	Value Sig
34	0,969	0,00

Table 12 shows a significance value of 0.00 (less than the threshold value = 0.05). Thus, there is a significant correlation between the pre and post test scores of the small group at the 5% confidence level (0.00 < 0.05).

**Table 11. Paired Sample T-Test Results**

Value t	Df	Value Sig.
43,52	33	0,00

Based on table 8, it is found that the t test value is 43.52 (df = 33) and a significance value of 0.00. The significance number is smaller than the confidence level threshold value of 5% (0.00 < 0.05). Thus, it can be concluded that there is a significant difference between the Pre Test and Post Test scores in large group subjects.

Based on table 6, the average results of the pre test and post test, then the effectiveness is calculated using the Relative Effectiveness (ER) formula which analysis is as follows.

$$ER = \frac{85.16 - 41.63}{\left(\frac{41.63 + 85.16}{2}\right)} \times 100\% = 68.67\%$$

Based on the results of the above analysis, the value was 68.67%. Thus, by being consulted on the relative effectiveness test criteria, a product qualification was obtained in the "high effectiveness" category.

### 3.3.3.2 Normality test

In this study, the normality test used the Shapiro-Wilk test. The use of the Shapiro-Wilk test is because the samples in the small group trial were 34. The Shapiro-Wilk test is more suitable for small sample sizes (<50 samples) (Balogun, 2015; Laerd Statistics, 2018; Shapiro & Wilk, 1965). The results of the small group normality test can be seen in the table below.

**Table 12. The Result Test of Normality**

	Shapiro-Wilk		
	Statistic	df	Sig.
<i>Pre Test</i>	,958	34	,215
<i>Post Test</i>	,942	34	,070

Based on table 9, it is found that the normality value of the Pre Test is significant, 215 (df = 34), and the normality value of the Post Test has a significance of 0.070 (df = 34). Explain the significance value greater than the threshold value of the normal level of 0.05 (with details = significance value > 0.05). Thus, it can be concluded that the Pre Test and Post Test data are normally distributed.

Based on the results of this study, the development of an E-Module based on the Science Technology Society integrated Life Based Learning in history subjects in class XI SMA can increase the effectiveness of learning history with the support of relevant previous research. The journal from Kok & Schoor explained the views of social science teachers stating that the Science Technology Society learning applied in learning was able to provide better learning outcomes than pemebajran I activities compared to learning activities II [23]. The journal from Bettencourt, Velho & Almeida concludes that the results of interviews with teachers in the Science Technology Society model of high school show positive things for students while participating in classroom learning [24]. The journal of

Nasser Mansour states that the Science Technology Society model is the preferred model for educators because it can influence social behavior in the classroom [25].

The journal from Mai, etc, explained the results of a survey on the application of Science Technology Society learning, arguing that an increase in the assessment of learning outcomes in social sciences in societal learning provided an increase in student learning outcomes with the results of the comparison of the first meeting of 48.05% then at the second meeting; to 73.30% [26]. The journal from Akcay & Yager, describes the results of learning activities using the Science Technology Society model which can improve learning compared to a model that focuses on educators in grade nine [27]. The journal from Keith Courville explains that the Science Technology Society shows greater interest in implementing learning, more positive attitudes towards the scientific profession, and increased conceptual mastery than students who are taught traditionally, textbooks, or inactive behavior [31].

The research from Minasari explained that there were differences in the understanding of the material of students using the Science Technology Society model with a configurational learning model with the size of the learning outcomes of students [28]. Angelia's research stated that the module using the SETS model was able to improve student learning outcomes by 92.6% with a very practical category [29]. Research conducted by Ratnaningtyas said that learning using the Science Technology Society model was able to improve students' cooperative attitudes reflected in the result score. observation obtained 76.67% in the very good category [30].

Journal of Maclean. 2007 stated that Life Based Learning is able to provide added experience for high school students to solve social problems in their community [31]. Journal from Staron. 2011 in (Sudira n.d) Life Based Learning learning is able to invite students to find solutions to problems in the community by analyzing the root of the problem in terms of social science learning outcomes in schools [32].

#### 4 Conclusion

The results of the development of electronic E-Module E-Module Based on Science Technology Society Integrated Life Based Learning in the History Subject of Class XI SMA have been expertly validated, namely: (1) validation of material experts got a percentage value of 82% which was included in the category "good" and "No Need for Revision" in product eligibility criteria, (2) linguist validation gets a percentage value of 94% which is included in the "very good" and "No Need Revision" category in the product eligibility criteria, and (3) design expert validation gets a percentage value of 91.6% are included in the category "very good" and "no need for revision" in the product eligibility criteria. Besides being validated by experts, the E-Module Based on the Science Technology Society Integrated Life Based Learning in the History Subject of Class XI SMA is also validated by users, who get a percentage value of 83.2% which is included in the "good" category in the product eligibility criteria.

E-Module Based on Science Technology Society Integrated Life Based Learning in History Subject for Class XI SMA is effective in increasing students' knowledge. The effectiveness level of the module was obtained from two trials carried out, namely: (1) small group trials got a percentage value of 67.91% which was included in the "high effectiveness" category in the relative effectiveness criteria, (2) large group trials got a percentage value of 68.67% which included in the category of "high effectiveness" in the criteria for relative effectiveness.

#### Acknowledgments

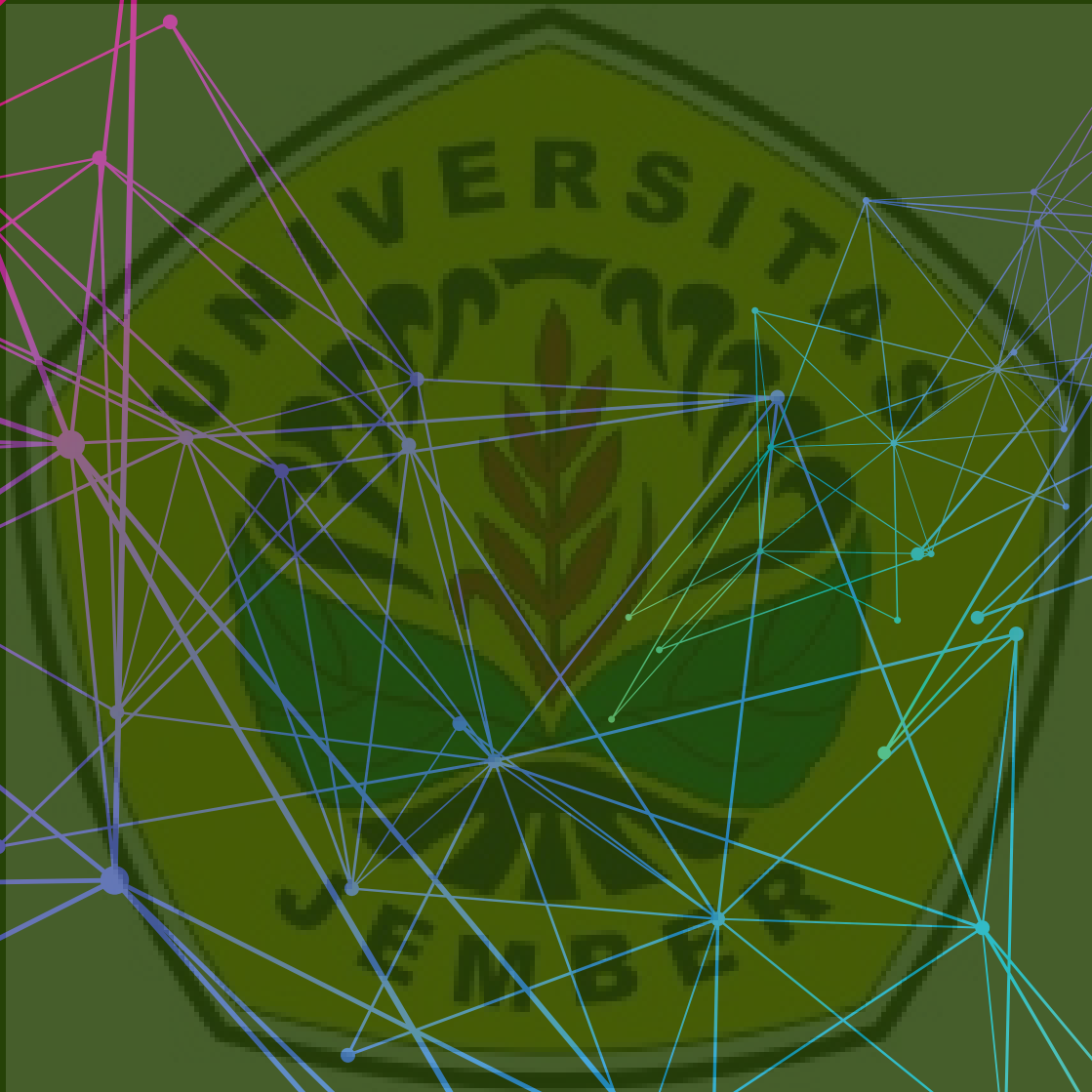
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