



The Development of ARCS-Based Economic E-Book Media for Senior High School

Kartika Yunita Saputri[✉], Sigit Santoso, Aniek Hindrayani

DOI: 10.15294/dp.v16i1.29810

Department of Magister Economic Education, Universitas Sebelas Maret, Indonesia

History Article

Submitted 2021-04-12
Revised 2021-05-04
Accepted 2021-05-31

Keywords

ARCS Model; Economic E-book; Senior High School

Abstract

This study aimed to determine the appropriateness of ARCS-based economic e-books on international trade material in the class XI IPS of Senior High School in terms of experts' assessments and students' responses to e-book products developed. This study used the Borg & Gall development model which was modified into 10 stages, namely: 1) research and information gathering; 2) planning; 3) early e-book product development; 4) initial trials; 5) revision I; 6) main trials; 7) revision II; 8) operational trials; 9) revision III; 10) dissemination. The research was conducted in class XI of Senior High School in Surakarta. Data collection methods in this study used validation sheets and questionnaire sheets which were analyzed descriptively. The results showed the feasibility of an economic e-book based on ARCS qualified "very feasible" for the media aspect with a percentage of 93,75% and the material aspect with a percentage of 88,09% according to experts, and linguist with a percentage of 100% and received a positive response from students with a percentage of 76,11%.

How to Cite

Saputri, K. Y., Santoso, S., & Hindrayani, A. (2021). The Development of ARCS-Based Economic E-Book Media for Senior High School. *Dinamika Pendidikan*, 16(1), 83-93.

[✉] Correspondence Author:
Jl. Ir. Sutarmi No 36A, Kentingan, Surakarta
E-mail: kartikayunita93@gmail.com

INTRODUCTION

The development of science and technology has resulted in changes in almost all aspects of life, one of which is education. Developments in the world of education spur various innovations that use the results of the use of technology in learning activities. The global generation is becoming increasingly sensitive to technology to develop knowledge (Dwiningsih, Sukarmin, Muchlis & Rahma, 2018: 156). This is a great potential that can be maximized by the teacher so that learning can be carried out effectively. Learning is actually an activity that creates communication between teachers and students. The learning process that has occurred has encountered several obstacles.

One of the efforts made to overcome the obstacles that occur in the learning process is by utilizing appropriate learning media. One of the supporting components for achieving a goal in learning is the development of instructional media. Learning media is a learning resource resulting from the development of technology in learning activities (Warsita, 2017: 77). Media is a tool that functions as an intermediary in the delivering of learning material to students (Wibawa, Astuti & Pangestu (2019). The use of learning media will help teachers deliver material easily, while for students it can increase learning motivation and master the competencies being taught.

The learning media that are often used are text books, modules, and power points. The media that have been used in the learning have limitations, namely that they are less practical for students to use at any time. The limitations of this learning media provide an opportunity to take advantage of learning technology in the process of activities. The digital technology development is very fast, one of which is a mobile phone or smartphone. The emergence of smartphones was driven by human needs that were instantaneous and fast in solving problems without the need to meet face to face.

Smartphones from time to time are increasingly sophisticated and are able to replace the existence of computers and laptops that are commonly used by people in carrying out work. This is a consideration that smartphones are a tool to do human work today. Almost all people in the world, especially Indonesia already have a communication tool in the form of a smartphone. Smartphone users in Indonesia occupy the third position in Asia Pacific with 83.18 million users in 2018 (Kusnandar, 2019).

Smartphone users are not only for adults,

but are also owned by students and university students. Smartphones can be used as a means of learning, entertainment media, to communication and business tools. This is what makes smartphone development the most actual in Indonesia over the last five years. The services and features offered by smartphones attract people, especially children. This interesting feature is what makes smartphones for students with applications designed specifically for users.

65.98% of students use smartphones only to access social media (Wulandari, Darmawiguna, and Wahyuni, 2014: 401). Not only for accessing social networks, the use of smartphones has a positive impact on making it easier to access information on learning activities. Through the use of smartphones, students can more easily find the information they need in learning. However, smartphone use also has a negative impact on students. Some of the events related to the negative impact of smartphone use include addiction to games, making lots of friends through social media and also content that is not worth seeing.

The use of smartphones as learning media can reduce negative effects of using smartphones among students. Learning media provide an important role in the student learning process, namely as a source of independent learning for students and as a means of facilitating teachers in teaching (Rusman, 2012: 60). This is the reason for the use and development of smartphones as learning media, especially in the economic field. The use of smartphones as learning media is in the form of a digital book or also known as an e-book (electronic books).

E-book is a textbook in digital form in which there are text, images, and videos and can be read on electronic devices (Chen & Jang, 2013; Liaw and Huang, 2014). With the existence of text, images, and videos can add a more attractive impression in reading a book. E-books are the latest technological breakthroughs that can replace printed books for a more prospective and advanced future (Cassaladen & Pears, 2019).

E-books have several benefits, namely (1) easy to use anytime and anywhere; (2) durable and not easy to rot because it is stored in the form of files; (3) can better preserve a larger number of book references; (4) can increase learning satisfaction for readers (Nguyen, 2015: Tuah, Herman, and Maknun, 2019). The benefits of e-books can be felt by students and are recommended in a learning environment (Kissinger, 2013: 156). The benefits of e-books as learning media are the guidelines for developing the e-book itself.

Senior High School (SMA) is one level of

formal education that prepares students to become educated and skilled graduates to be able to continue to a higher level of education. Senior High School in Surakarta consists of 8 public and 20 private senior high school. Senior High School of Al Ashar Budi Syifa Surakarta and Senior High School 5 Surakarta are formal educational institutions in Surakarta that have both academic and non-academic achievements in the Science and Social Studies programs. In the social studies program, especially in grade 11, there are economic subjects. In economics, class XI IPS learns about international trade material. In this material, there are many theories that students must understand in order to easily master the subject matter and do the assignments given by the teacher.

The results of interviews with economics subject teachers in class XI Senior High School, it is known that economic learning still uses printed books from libraries that students borrow. The printed book is less practical to carry anywhere and the material presented is not easily understood by students. This condition causes the learning motivation of students to be not optimal. Less motivation causes student learning outcomes to be less than optimal. This is in contrast to the learning objectives, namely learning motivation and good and satisfactory learning outcomes of students.

The learning process allows students to use smartphones. Seeing this potential, researchers want to make a breakthrough by developing learning media that use smartphones in the form of e-books. The development of e-books as learning media can be integrated with learning models, one of which is the ARCS model. The ARCS (Attention, Relevance, Confidence, Satisfaction) model is an approach to problem solving in learning that is designed through a motivational component to provide learning encouragement for students (Keller, 1983).

Students are able to build initial knowledge to make an understanding of new material used to solve a problem learning process through ARCS model (Reynold, Robert, and Hauck, 2017: 33). When compared to other learning models, the ARCS model is able to increase students' learning motivation. The ARCS model can improve learning motivation and student learning outcomes. E-books based on ARCS model can encourage the attention and self-confidence of students in the learning process (Turel and Sanal, 2018: 130).

Based on previous research, Mawaddah (2015) revealed that the development of work-

sheets with the ARCS strategy could improve student learning outcomes. Suwartini and Fujias-tuti (2017) revealed that the creation of ARCS-based textbooks could improve students' critical and creative thinking skills. Fadilah, Yahya, and Rahman (2016) revealed that modules oriented to the ARCS model could make students happy to learn independently and easily understand the material being taught. However, the development of ARCS-based e-book is only limited to economic learning materials so that only learning motivation and understanding of economic learning materials are increased.

Previous research conducted based on literature studies showed that the ARCS model could increase student learning activities, motivation and learning outcomes. Therefore, in this research, an ARCS-based e-book of economic will be developed that can be used by teachers and students in their activities. The formulation of problem in this study is how to develop an ARCS-based economic e-book that is suitable for use in the daily learning process. The purpose of the study is to develop an ARCS-based economic e-book that is suitable for use in the learning process.

METHODS

This study was Research and Development (R & D). R & D is used to develop and or produce a specific product and is useful for testing the effectiveness of the product. Referring to the Borg & Gall model, with the following steps: 1) study and data collection; 2) planning; 3) development of initial form of the product; 4) limited trials; 5) revised trial results; 6) extensive trials; 7) revised broad trial results; 8) field trials; 9) refinement of products from field trials; 10) dissemination and implementation.

The test subjects were students of class XI SMA "X" in Surakarta. Selection of subjects used *purposive sampling technique*. Research samples were SMA Al Azhar Syifa Budi Surakarta, SMA Negeri 5 and SMA Negeri 3 Surakarta. The data were collected by using non-test instruments in the form of closed questionnaires through the guttman scale "yes and "no" and interviews with teachers about learning motivation and student learning outcomes. Data were analyzed by using percentage qualitative descriptive analysis. Decision making about the feasibility of developing an ARCS-based economic e-book media using a convention level of achievement with scale of 4, can be seen in Table 1.

Table 1. Media eligibility decisions

Feasibility Criteria	Feasibility Level
76% - 100%	Extremely Feasible
51% - 75%	Feasible
26% - 50%	Less Feasible
1% - 25%	Extremely Not Feasible

Source: Processed Primary Data (2020)

Data collection techniques used observation and test. Observation is a passive participation approach which refers to the concept offered, namely students who take economic learning in school from home activities, observation during school from home activities using ARCS-based economic e-books media, and unstructured interviews with students who take part in the economic learning process in school from home activities and teachers who teach economics in school from home activities.

Tests are also needed to obtain data and information about the achievement of learning outcomes and the implementation of economic learning using ARCS-based economic e-books in school from home activities. The data validity technique used was source triangulation (Sulistiyowati, Nurkamto & Wahyuni, 2006). The data analysis used was the interaction model of Miles and Huberman, with steps, namely collecting data, reducing data, and making conclusions.

RESULTS AND DISCUSSION

Needs Analysis Stage

This stage was conducted by the descriptive observation method. The writer made general observations and comprehensively described everything he saw, heard, and felt to determine the problem. The results of the observations were the lack of student motivation, the achievement of student learning outcomes was still lacking, and the development of technology became an opportunity to develop learning innovations. The next stage, after finding the problems raised, an interview method was conducted to the economics teacher of class XI SMA "X" in Surakarta.

Based on the results, student motivation was still low, learning outcomes were also low, so it was necessary and important for the development of learning media. Good learning motivation will lead to improving student learning outcomes (Daugherty, 2019). Learning at home makes the teacher design learning motivate student learning and improve student learning out-

comes. Learning media is connecting teachers and students in the learning process. Media in the learning process has a crucial role, namely as a tool in learning activities and as learning resource that is used independently and systematically in distributing directed information to achieve learning goals.

Preliminary observations in the process of learning economics at SMA Kota Surakarta, namely SMA Al Azhar Budi Syifa Surakarta, SMA Negeri 5 Surakarta, and SMA Negeri 3 Surakarta, the information from interviews with teachers obtained the following data: (1) the teacher still experienced problems in using learning media based on learning models; (2) teachers had difficulty allocating time in the learning process; (3) teachers still had not applied an appropriate learning model to arouse students' learning motivation; (4) there was no learning media in form of an e-books used in the learning process in schools; (5) teachers still often used books from the library and worksheets when delivering material. From the results of the preliminary study in the form of interviews with teachers, it was necessary to develop an economic e-book based on the ARCS model that could be used in economic learning.

Turel and Sanal (2018: 130) revealed that the ARCS-based economic e-book media can be used as a solution as an effective and innovative means to increase student motivation and lead to better learning outcomes in economic subjects. ARCS-based economic e-book is a systematic and interesting media that contains materials on economic learning to help students learn more easily and actively participate in learning activities so that learning objectives can be achieved. This is in line with the opinion (Suwartini and Fujiastuti, 2017: 141) that ARCS-based e-book media is an attractive educational tool and is used as an intermediary in the learning process to enhance learning motivation, student activity, and the level of effectiveness in achieving learning goals.

Based on the results of the pre-research needs analysis carried out, it was found that high school economics teachers in the city of Surakarta had used several learning media including text books, modules, power points, and e-books in supporting learning activities. The economics teacher in Surakarta had also implemented a learning model based on the motivational aspect, namely the ARCS model during the learning process to achieve effective learning goals.

This condition made it easier for researchers to integrate the ARCS model in e-book media, especially in economic subjects. Meanwhile, the students' needs analysis showed that the lear-

ning media favored by students were text books, power points, modules, and e-books with a percentage of 70%, 80%, 80%, and 85%. Based on the analysis of student needs, the media needed to achieve learning objectives related to learning motivation and student learning outcomes in economic learning was ARCS-based economic e-book media.

Media Design Stage

ARCS-based economic e-book media contained several learning components, namely learning objectives, learning materials, and assessment in learning. In addition to the learning component, the ARCS-based economic e-book media was equipped with motivational quotes that can arouse students' enthusiasm and interest in learning in economic learning. All components in the ARCS-based economic e-book media were arranged in a coherent and attractive manner because they were equipped with images, videos, audio, and animation.

Each component in the ARCS-based economic e-book media had an important purpose. Objectives needed to be set as a reference for the achievement of abilities that must be mastered by students in the economic learning process both in terms of affective (attitude), cognitive (knowledge), and psychomotor (skills). The three abilities of these students are in accordance with the applicable 2013 curriculum. The 2013 curriculum is structured to prepare students who are expected to make students better prepared for future challenges with qualified skills (Theodora & Marti'ah, 2017; Septianingrum & Indartono, 2019). Furthermore, in order to achieve effective goals, relevant materials were prepared and aroused students' learning motivation, especially in economic learning.

The ARCS-based economic e-book media contained economic learning material, especially on international trade material in class XI of senior high school which was arranged attractively with motivational quotes to further arouse students' motivation in learning economics. The ARCS-based economic e-book media also contained questions and assignments that could increase students' understanding in studying economic material, especially international trade material so that student learning outcomes were getting better. Thus, the economic e-book media contained material and questions that could increase learning motivation and student learning outcomes in learning economics.

The ARCS-based economic e-book media was packaged in the form of an e-pub to make

the learning process more interesting and effective. An interesting learning process would further enhance the attention of students in the learning process, increase students' self-confidence and learning satisfaction, and increase students' motivation in learning economics. The ARCS-based economic e-book media also provided feedback to students as an independent learning tool. It was hoped that through the ARCS-based economic e-book media would help students to be able to increase learning motivation and learning outcomes, especially in learning economics on international trade material for class XI senior high school.

The e-book draft that had been prepared was adjusted to the ARCS learning model to make it easier for teachers and students to use it. Then the e-book draft was validated by a team of experts and a trial was carried out aimed at getting an assessment, input, and suggestions on the feasibility of the product in the form of an ARCS-based economic e-book media being developed. After the e-book had gone through several validations by 3 validators namely media validator, material validator, and language validator as well as limited scale trials stages, the ARCS-based economic e-book was suitable for use by class XI students.

Production stage

At this stage, ARCS-based economic e-book media was developed in digital form in the form of an e-book containing international trade material for class XI of senior high school. Based on the 2013 curriculum, high school of class XI economics learning for international trade material included basic competencies 3.8 analyzing international trade concepts and policies and 4.8 presenting the impact of international trade policies. Of the two basic competencies, there were several learning objectives that must be achieved to increase learning motivation and student learning outcomes.

The learning objectives formulated in the ARCS-based economic e-book media were that students are expected to be able to: 1) explain the meaning of international trade with attention, relevance, and confidence; 2) identify the benefits of international trade with care, relevance and confidence; 3) mention the factors of international trade with care, relevance and confidence; 4) analyze international trade theory with attention, relevance, and confidence.

The learning objectives to be achieved in this study were to increase students' learning motivation and to master cognitive competence (kno-

wledge) as a form of student learning outcomes in economic learning. To achieve these learning objectives, it was necessary to compile economic learning materials, especially regarding international trade that was attractive and in accordance with economic problems in everyday life.

International trade materials for grade XI of SMA were arranged in a coherent and attractive manner in the form of images, videos, audio, and animation in the ARCS-based economic e-book media. The ARCS model emphasized the attention of students during the learning process, material suitability, self-confidence, and student learning satisfaction. This model aimed to make students active in the learning process so that they were able to understand the material being studied related to international trade. The material was equipped with videos and pictures that supported the learning material. This e-book media was designed attractively with Sigil software in e-pub format.

To determine the achievement of learning objectives, a measuring instrument that was in the form of assessment in learning was needed. In this study, the assessments used were questions and assignments. For assignments, students were given assignments to complete each learning objective. Meanwhile, the evaluation questions were in the form of multiple choice questions and essay questions. Questions and assignments were already contained in the ARCS-based economic e-book media.

For the research instrument used in this research was a learning motivation questionnaire and a learning outcome test. The questionnaire instrument was made in accordance with the indicators of learning motivation, namely attendance, discipline, business persistence, achievement, responsibility, and learning participation (Schunk, Pintrich, and Meece, 2012: 17). The questionnaire contained 20 questions which were arranged based on the learning motivation questionnaire lattice. While the test instrument contained 15 questions in the form of 10 multiple choice questions and 5 essay questions. Every question in the test instrument was relevant to international trade material.

This e-book media can be accessed by using *tablets, cellphones, and Android smartphones* with the following superior product specifications: 1) e-book media using Sigil software; 2) the media is designed like a book, complete with pictures, videos, practice questions at the end of each lesson and motivational quotes in communicative language; 3) e-book media in e-pub format can be accessed with *supreader* reading application; 4)

completed with learning evaluation; 5) choosing each element of the *font*, color, material, animation, video, and layout to consider aesthetic and functional elements in order to make it easier for students to use them as reading media; 6) there are guidelines for using the e-book.

In Figures 1, 2, 3, and 4, some parts of the ARCS-based economic e-book media development product were shown in the form of covers, materials, exercise questions, and motivational quotes. Figure 1 showed the cover of the ARCS-based economic e-book media, while the learning materials equipped with interesting videos and images were shown in Figure 2, in Figure 3 you can see the competency test on ARCS-based economic e-book media, and Figure 4 showed the quote motivation from some figures who can motivate and strengthen the enthusiasm for learning of students in studying economic material.

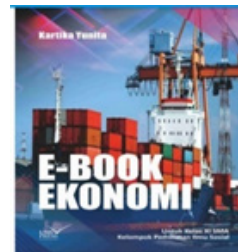


Figure 1. Cover

Source: Processed Primary Data (2020)



Figure 2. Video

Source: Processed Primary Data (2020)



Figure 3. Evaluation

Source: Processed Primary Data (2020)



Figure 4. Quote motivation
Source: Processed Primary Data (2020)

Expert Validation Stage

The E-book draft that had been prepared in accordance with the ARCS model was validated by a team of experts whose aim was to assess the feasibility of the product in the form of an ARCS-based economic e-book that had been produced. The ARCS-based economic e-book feasibility assessment was carried out by a team of experts in their respective fields. The product feasibility assessment consisted of media experts, material experts, and linguists. Suggestions and input from the expert team was used as a reference for making improvements and enhancing the ARCS-based economic e-book, here are the results of the expert team’s validation.

Media validation was assessed through a questionnaire submitted to a team of experts. The media aspect was the visual aspect and the technical aspect. The results of the assessment from media experts can be seen in Table 2.

On Table 2, it showed that the results of the media expert’s assessment of the ARCS-based economic e-book as a medium in the learning process scored 93.75% with very good criteria, which measured the display aspect of 91.67%,

the criteria were very good and the technical aspects scored 96.87% with very good criteria. The results of this assessment indicated that the ARCS-based economic e-book met the requirements as a medium and was suitable for use as a tool that supported the economic learning process. Next stage was material expert validation, was assessed through a questionnaire distributed to a team of experts. The aspects assessed can be seen in Table 3.

Based on the data obtained from the results of validation from material experts on the ARCS-based economic e-book, the following aspects of the content feasibility got a score of 95.45% with very good criteria and for the feasibility aspect of the presentation it got a score of 85% with very good criteria, and after Average score of 88.09% with very good criteria. From these data, it showed that the material in the ARCS-based economic e-book was suitable for use in the economic learning process.

Language aspects (Linguist Validation) that were assessed were conformity with the level of development of students’ thinking, legibility, ability to motivate, agility, coherence and sequence of thought, and conformity to language rules. The results of the assessment from language experts can be seen in Table 4.

Based on Table 4, it can be seen that the use of grammar in the ARCS-based economic e-book obtained an average score of the results of linguist validation by 100% with very good criteria. These results indicated that the ARCS-based economic e-book was very good and suitable for use as a learning medium.

On the Table 5, it described suggestions

Table 2. Validation Results of Media Experts

No	Aspect of Media Assessment	Scoring Scale				
		$\sum ni$	$\sum N$	100%	Score	Criteria
1.	display	44	48	100%	91,67%	Very good
2.	Technical	31	32	100%	96,87%	Very good
Score		75	80	100%	93,75%	Very good

Source: Primary Data Processed (2020)

Table 3. Results of Material Expert Validation

No	Aspect of Media Assessment	Scoring Scale				
		$\sum ni$	$\sum N$	100%	$\sum ni$	Criteria
1.	Content eligibility	42	44	100%	95,45%	Very good
2.	Serving eligibility	34	40	100%	85,00%	Very good
Score		74	84	100%	88,09%	Very good

Source: Primary Data Processed (2020)

Table 4. Linguist Validation Results

No	Aspect of Media Assessment	Scoring Scale				
		$\sum ni$	$\sum N$	100%	$\sum ni$	Criteria
1.	Suitability with the level of student thinking development	8	8	100%	100%	Very good
2.	Legibility	4	4	100%	100%	Very good
3.	Motivating ability	8	8	100%	100%	Very good
4.	Discretion	8	8	100%	100%	Very good
5.	Coherence and order of thought	8	8	100%	100%	Very good
6.	Conformity with language rules	4	4	100%	100%	Very good
Score		40	40	100%	100%	Very good

Source: Primary Data Processed (2020)

Table 5. Improvements from the Validation Team

Feedback	Improvement
Media Expert	
Can be used for further research	Conduct a limited trial run
Material Expert	
The material needs to be further refined	Refining the material according to the curriculum, ARCS model, and the needs of students
Linguist	
Double check the writing that is still mistyped	Written typos are corrected according to expert input

Source: Primary Data Processed (2020)

from media, material, and language experts which were then corrected. Several revisions from media experts regarding the design of ARCS-based economic e-book media products, namely in the display aspect, media experts provided suggestions and input for adjusting the placement of letters and images used in ARCS-based economic e-book media. There were letters and words that still needed to be corrected due to typos in the ARCS-based economic e-book. Furthermore, revisions were made to correct typo letters and words. In addition, it was equipped with a more attractive image. On the technical aspect, the economic e-book media provided convenience and usefulness for students in studying economic material, especially international trade.

There were several revisions of material on ARCS-based economic e-book media based on suggestions given by material experts in terms of the feasibility of content and presentation feasibility, namely based on validation by material experts, the content of material in ARCS-based economic e-book media was incomplete and still needed more perfected, especially regarding international trade in accordance with economic problems that existed in everyday life in society. It

was also necessary to present questions regarding international trade cases.

In the aspect of presentation feasibility, material experts suggested compiling more interesting material by using word choices that were easy for students to understand and selecting images that could attract students' interest in learning economics. Suggestions and input from linguists for the ARCS-based economic e-book on the writing of typos. Furthermore, corrections were made to the typo in accordance with the input of the linguist so that it could be used in further research.

All suggestions from experts were fixed. This was relevant to the research of Istifarida, Santoso, and Yusup (2017) regarding the development of e-books based on learning models that had been developed was suitable for use in the learning process. A limited trial was conducted to obtain student responses to the ARCS-based economic e-book. This limited trial was carried out on class XI students at SMA Al Azhar Syifa Budi Surakarta on 9 students. The results of students' responses during limited trials can be seen in Table 6.

Table 6. Limited Trial Results

No	Aspects of Media Assessment	Scoring scale				
		$\sum ni$	$\sum N$	100%	Score	Criteria
1.	Presentation	141	180	100%	78,33%	Good
2.	Technical Quality	140	180	100%	77,78%	Good
3	Benefits	130	180	100%	72,22%	Good
Score		411	540	100%	76,11%	Good

Source: Primary Data Processed (2020)

Based on the results of the ARCS-based economic e-book assessment by 9 students obtained a score of 76.11% with good criteria. These results indicated that students gave positive responses to the ARCS-based economic e-book that was developed so that this ARCS-based economic e-book was suitable for use as an economic learning medium so that it could be implemented on a broader scale. The uniqueness of the ARCS-based economic e-book media were videos that could attract the attention of students based on the ARCS syntax, material relevant to learning, and evaluation questions accompanied by motivational quotes that further increased student confidence and learning satisfaction.

Research on the development of ARCS-based economic e-book media was based on the results of the media needs analysis conducted at SMA Kota Surakarta. Preliminary studies showed that book media in digital form was still not optimally used in schools. The media used was only in the form of textbooks and power points. Less optimal use of book media in digital form was because it was not available and teachers still did not have the ability to develop learning media. The use of text books and power points made students tend to be passive in learning. Learning was dominated by teachers in delivering material.

The power point used by the teacher was only in the form of text and a few pictures that were less attractive so that students became less interested in learning. Based on the analysis of preliminary studies, the media used was less attractive and less varied. The results of the media needs analysis showed that the e-book media had been used in learning economics. Students were interested in using ARCS-based economic e-book media in the form of e-pubs because they were interesting and could be accessed easily via Android. In addition, there were students who were familiar and comfortable in using textbooks and power point media.

In terms of the analysis of media needs for economics teachers, the media that were often

used were textbooks and power points because they were easy to use and obtain. The use of media that did not vary due to other media was not available and was considered to take time in its manufacture. One of the learning models used by economics teachers was the ARCS (Attention, Relevance, Confidence, and Satisfaction) model. However, overall learning that was carried out was still centered on teachers or teacher-centered learning. The teacher focused on explaining the material with the help of textbooks and power point media. Meanwhile, students only recorded the material in the power point. Learning became ineffective and students tended to be passive.

Preliminary studies showed that almost all students had an android which was used to access the internet. This can be used as an opportunity to use Android as a tool to access ARCS-based economic e-book media in the form of e-pubs. The ARCS-based economic e-book media had the advantage of attracting the attention of students to learn, arranged according to the material and relevant economic problems that occurred and could increase self-confidence and learning satisfaction so that students' learning motivation could increase. Increased learning motivation would lead to the achievement of better student learning outcomes than before.

Based on the facts found in the field, the researchers developed ARCS-based economic e-book media as an intermediary for teachers in delivering economic material in learning. The use of ARCS-based economic e-book media was expected to increase learning motivation. Increasing learning motivation in students would lead to an increase in student learning outcomes. ARCS-based economic e-book media in the form of e-pubs were easily accessible to users, namely teachers and students. Media could be accessed by using Android and laptops and did not require expensive costs. ARCS-based economic e-book media could be distributed by sending e-books through social media (whatsapp, facebook, Instagram, blog, web).

ARCS-based economic e-book media de-

velopment used the Borg & Gall model through the stages of research and information collecting, planning, developing preliminary forms of product, preliminary field testing, main product revision, main field testing, operational product revision, operational field testing, final product revision, and dissemination. ARCS-based economic e-book media development began with creating a product design. After the initial draft of the product was completed, expert validation was carried out. Validation was carried out on the media, material and language. The results of media validation conducted by experts were in the form of quantitative descriptive.

The validation was carried out by media experts, the results obtained with a percentage of 93.75% in the very good category. Meanwhile, the assessment from material experts with a percentage of 88.09% was very good category. Meanwhile, the language validation with a percentage of 100% was very good category. Before proceeding to the next stage, first making revisions to the media based on suggestions from experts.

Furthermore, a limited trial was carried out on 9 students of class XI at Surakarta City High School to respond to the ARCS-based economic e-book media. The results of the response of the category students were very good. This showed that the use of economic e-book media based on ARCS got a positive or good response from students. The results of the limited trial obtained several suggestions from students so that revisions were made to the media in order to get products that were feasible and good for use in the learning process.

After the revision was carried out, an extensive trial was carried out on the feasibility of the ARCS-based economic e-book media for use in economic learning. The results of the student response questionnaire to the ARCS-based economic e-book media obtained a percentage of 76.11% with a very good category. This showed that the ARCS-based economic e-book media received positive responses from students and was categorized as very good and suitable for use in economic learning in class XI of SMA.

CONCLUSION

Based on data from research on the development of ARCS-based economic e-books, it can be seen that the e-books developed were suitable for use in the economic learning process. ARCS-based economic e-book media in the form of e-pubs had been developed which were compiled based on a model that contained motivational

elements and materials that were relevant to the problems that occurred in daily life. ARCS-based economic e-book media equipped with text, video, images, audio, and animation that were presented attractively were able to affect the interest and motivation of students in following the economic learning process.

The ARCS-based economic e-book media was declared suitable for use in the economic learning process based on the results of validation by media experts, material experts, and linguists and practitioners. The results of the media expert's validation showed a percentage of 93.75%. Meanwhile, the results of the material expert's validation showed a percentage of 88.09%. The results of the linguist validation showed a percentage of 100%. The results of the validation of media experts, material experts, and linguists on the ARCS-based economic e-book media were categorized as very good.

The percentage of media experts, material experts, and linguists was greater than 60% so that the ARCS-based economic e-book media was suitable for use in economic learning. This was based on the results of an assessment by a team of experts who validated ARCS-based economic e-books and was supported by limited trial data that received good responses from students. The use of economic e-books based on ARCS could make students motivated in the learning process, be able to make students learn independently, and be able to improve student learning outcomes.

Teachers should be able to develop media based on learning models according to the established curriculum, because teachers understand the conditions of students in school. The teacher can follow up on the e-book that was developed to be updated according to basic competency or other material. The use of ARCS-based economic e-books can make it easier for students to understand the material being taught. However, students are always active and enthusiastic to find other references because the ARCS model emphasizes the motivational aspects of students in learning. For the principal to be able to provide motivation and support in the form of training for teachers to produce and develop learning media according to the needs of students. Therefore, it is hoped that future researchers can develop e-books that are more innovative, creative, and communicative.

REFERENCES

Cassaladen & Pears, S.S. & Huang, H.M. (2014). In-

- investigating Learner Attitudes Toward E-Books as Learning Tools: Based on The Activity Theory Approach. *Journal Interactive Learning Environments*. 1. (1) 1-15.
- Chen, H.Y., & Jang, S.J. (2013). Exploring the Reasons for Using Electric Books and Technologic Pedagogical and Content Knowledge of Taiwanese Elementary Mathematics and Science Teachers. *The Turkish Online Journal of educational Technology*, 12(2), 131-141.
- Daugherty, K. K. (2019). ARCS motivation model application in a pharmacy elective. *Currents in Pharmacy Teaching and Learning*, 11(12), 1274-1280.
- Dwiningsih, K., Sukarmin, Nf., Muchlis, Nf., & Rahma, P.T. (2018). Pengembangan Media Pembelajaran Kimia Menggunakan Media Laboratorium Virtual Berdasarkan Paradigma Pembelajaran di Era Global. *Kwangsan: Jurnal Teknologi Pendidikan*, 6(2), 156-176.
- Fadilah, R.N., Yahya, F., & Rahman, A.H. (2016). Pengembangan Modul Fisika Berorientasi pada Model Motivasi ARCS Pokok Bahasan Suhu dan Kalor Siswa Kelas X SMA. *Prosiding Seminar Nasional Pendidikan 2016*, 366-376. ISBN: 978-602-61182-0-2
- Istifarida, B., Santoso, S., & Yusup, Y. (2017). Pengembangan E-Book Berbasis Problem Based Learning GIS untuk Meningkatkan Kecakapan Berpikir Keuangan pada Siswa Kelas X SMA N 1 Sragen 2016/2017. *Prosiding Seminar Nasional Geotik 2017*, 330-336. ISSN:2580-8796
- Keller, J.M. (1983). *Development and use of the ARCS model of motivational design*. East Lansing, MI: National Center for Research on Teacher Learning.
- Kissinger, J. S. (2013). The Social and Mobile Learning Experiences of Students Using Mobile. *Journal of Asynchronous Learning Networks*, 17, 1, 155-169.
- Kusnandar, Viva Budy. (2019). Indonesia Pengguna Internet Terbesar Ketiga di Asia. (Online). <https://databoks.katadata.co.id/datapublish/2019/07/18/indonesia-pengguna-internet-terbesar-ketiga-di-asia>
- Liaw, S.s., & Huang, H.M. (2014). Investigating Learner Attitudes Toward E-Books as Learning Tools: Based on The Activity Theory Approach. *Interactive Learning Environments*, 1-19
- Nguyen, N. (2015). Designing and Using Interactive E-Books in Vietnam. *International Journal of Learning, Teaching and Educational Research*, 11 (1), 75-98.
- Reynold, K.M., Robert, L.M., & Hauck, J. (2017). Exploring Motivation: Integrating the ARCS Model with Instruction. *Reference Services Review*, 45(2), 149-165, <https://doi.org/10.1108/RSR-10-2016-0057>
- Rusman, (2012). *Model-model Pembelajaran: Mengembangkan Profesionalisme Guru*. Jakarta: PT. Raja-grafindo Persada.
- Schunk, D. H., Meece, J. R., & Pintrich, P. R. (2012). *Motivation in education: Theory, research, and applications*. Pearson Higher Ed.
- Septianingrum, A., & Indartono, S. (2019). The Implementation of Archive Learning Based on the Kurikulum 2013. *Dinamika Pendidikan*, 14(1), 87-101. doi:<https://doi.org/10.15294/dp.v14i1.18755>
- Sulistiyowati, D., Nurkamto, J., & Wahyuni, D. S. (2006). THE IMPLEMENTATION OF MULTIPLE INTELLIGENCES IN ENGLISH LANGUAGE TEACHING. *English Education*, 4(1), 63-72.
- Suwartini, I., & Fujiastuti, A. (2017). Teknik Pembuatan Buku Ajar Membaca Kritis dan Kreatif Berbasis ARCS untuk Mahasiswa Pendidikan Bahasa dan Sastra Indonesia. *Bahastra*, 7(2), 138-147.
- Theodora, B. D., & Marti'ah, S. (2017). The Difference of KTSP and Kurikulum 2013 Implementation, Family Environment Toward Career Choosing Readiness. *Dinamika Pendidikan*, 12(2), 159-169. <https://doi.org/10.15294/dp.v12i2.13564>
- Tuah, Herman, N. D., Maknun. J. (2019). E-Book in Teaching and Learning Process. *Advance in Social Science, Education and Humanities Research*, 299, 281-287.
- Turel, Y.K., & Sanal, S.O. (2018). The Effects of an ARCS based E-book on Student's Achievement, Motivation and Anxiety. *Computers & Education*, 127, 130-140.
- Warsita, B. (2017). Peran dan Tantangan Profesi Pengembang Teknologi Pembelajaran pada Pembelajaran Abad 21. *Kwangsan: Jurnal Teknologi Pendidikan*, 5(2), 77-90.
- Wibawa, R., Astuti, R., & Pangestu, B. (2019). Smartphone-Based Application "quizizz" as a Learning Media. *Dinamika Pendidikan*, 14(2), 244-253. doi:<https://doi.org/10.15294/dp.v14i2.23359>
- Wulandari, N.K.M., Darmawiguna, I.G.M., & Wahyuni, D.S. (2014). Survey Deskriptif Optimalisasi Penggunaan Smartphone di Kalangan Mahasiswa dan Siswa Se-Kota Singaraja. *Karmapati*, 3(6), 401-410.