

## Improving Educators Digital Literacy Through Assistance in the Development of Lectora Inspire- Based Mathematics Learning Media

Robiatul Adawiyah <sup>a)</sup>, Arika Indah Kristiana

Department of Mathematics Education, University of Jember, Jember, Indonesia

<sup>a)</sup> Corresponding author: robiatul@unej.ac.id

### Abstract

The competence of an educator is the main key to the success of a lesson. The problems that exist in schools partner are that educators complain about the low numeracy skills of students and the minimal use of technology in learning. Teachers are the main key to the success of nursery human resources. Teachers are required to be more creative, innovative and inspiring in designing quality learning activities to welcome Indonesia's golden generation, especially in learning mathematics. Digital-based learning media can attract students to be more enthusiastic about learning mathematics. One of the software that can be used to develop mathematics learning media is the *Lectora Inspire software*. In order to develop a technology-assisted learning media, educators' digital competencies really need to be built so that educators can be more creative in creating interesting and not boring learning. Therefore, a teacher competency development assistance is needed, where a forum for the development of pedagogic and professional competencies for teachers at SMPN 6 Tanggul in Kramat Sukoharjo Village. Community service activities are packaged by applying the ADDIE (Analysis-Design-Development-Implementation-Evaluation) training model. Based on the results of the pretest and posttest, the percentage of N-Gain was 76%. Based on the category of interpretation of the effectiveness of N-Gain, the value is included in the effective category because it meets the value of  $P > 75\%$ . That is, learning media based on lecturera inspire is effective in increasing student understanding.

**Keywords:** Digital Literacy, Mathematics Learning, Lectora Inspire

### INTRODUCTION

Mathematics is a foundation for building reasoning that needs to be given to all students at all levels. Difficulties experienced by students and feelings of disinterest in mathematics are common in every generation. This is caused by the implementation of learning mathematics in class which tends to be monotonous and boring [ 4]. Based on interviews that were conducted with school principals and teachers at SMPN 6 Tanggul, the problems that exist in partner schools are that educators complain about the low numeracy skills of students and the minimal use of technology in learning. SMPN 6 Tanggul, which is a one-roof junior high school and is located in a remote area far from the city center, is still unfamiliar with the use of technology in learning.

The world has now entered the era of Society 5.0, where technology and humans are an inseparable unit. Students have the same right to get the best teaching, especially learning that is in accordance with the times. Teachers are the main key to the success of nursery human

resources[10]. Teachers are required to be more creative, innovative and inspiring in designing quality learning activities to welcome Indonesia's golden generation, especially in learning mathematics. Mathematics is a subject that is abstract and difficult for students to understand [9]. However, if packaged with interesting learning media, it will motivate students to enjoy mathematics more. The development of digital-based learning media can attract students to be more enthusiastic about learning mathematics. One of the software that can be used to develop mathematics learning media is the *Lectora Inspire software*.

*Lectora Inspire* provides a variety of tools that support displaying material, displaying web pages, and taking quizzes. To be able to develop a technology-assisted learning media, educators' digital competencies really need to be built so that educators can be more creative in creating interesting and not boring learning. Based on the facts on the ground, these demands are not in line with the quantity of teacher competency development assistance, where the forum for developing a teacher's pedagogic and professional competencies is still very minimal, especially for teachers at SMPN 6 Tanggul in Kramat Sukoharjo Village. The process of learning mathematics which is less creative and monotonous, makes students bored and bored, causing students to be sleepy, not concentrating, busy alone, etc. which results in material not being absorbed properly by students.

Utilization of IT in learning mathematics is still lacking and teachers only present material through powerpoint which is used in presentations instead of whiteboards [2]. Therefore, a new media innovation is needed to encourage students' interest in learning mathematics. Today's increasingly sophisticated developments in technology and information strongly support the implementation of an effective and interesting learning process [3]. *Lectora Inspire* is software that can be used to create learning media. *Lectora Inspire* provides a variety of *tools* that support displaying material, displaying web pages, and taking quizzes. Some of the advantages of *Lectora Inspire* in developing learning media include (1) without doing *programming*, teachers can create and present learning materials, (2) teachers can make evaluations of teaching materials in the form of tests such as multiple choice, true/false, *matching* or matching, short entries, *drag and drop*, and *hot spots*, (3) teaching materials can be accessed by teachers or students both online *and* offline, (4) being able to combine text, video, sound, animation in one unit. Evaluations made at *Lectora Inspire* can provide immediate *feedback* indicating whether the answer is correct or incorrect, and the score can be immediately known. Content developed from *Lectora Inspire* can be published in various forms, such as HTML5, *single executable file (.exe)*, CD-ROM, or *e-learning* standards such as AICC and SCORM. By using this application, educators can also develop learning media that are environmentally sound. An initial display image of *Lectora Inspire* can be seen in Figure 1.



Figure 1. Initial view of the Lectora Inspire application

Based on these problems, a forum is needed to develop educator competencies, especially digital competencies to create a golden generation. To overcome the problems faced by partners, namely training, mentoring, and mentoring for educators in developing *Lectora Inspire*-based learning media. Therefore, in the community service activities that have been carried out, we take the title "Increasing Educator's Digital Literacy Through Assistance in the Development of *Lectora Inspire Based Mathematics Learning Media* Based on Local Wisdom"

## METHOD

Based on the problems that exist with partners and the solutions offered, this community service activity uses the ADDIE (Analysis-Design-Development-Implementation-Evaluation) model. The Analysis-Design-Development-Implementation-Evaluation (ADDIE) model which appeared in the 1990s was developed by Reiser and Mollenda [6].

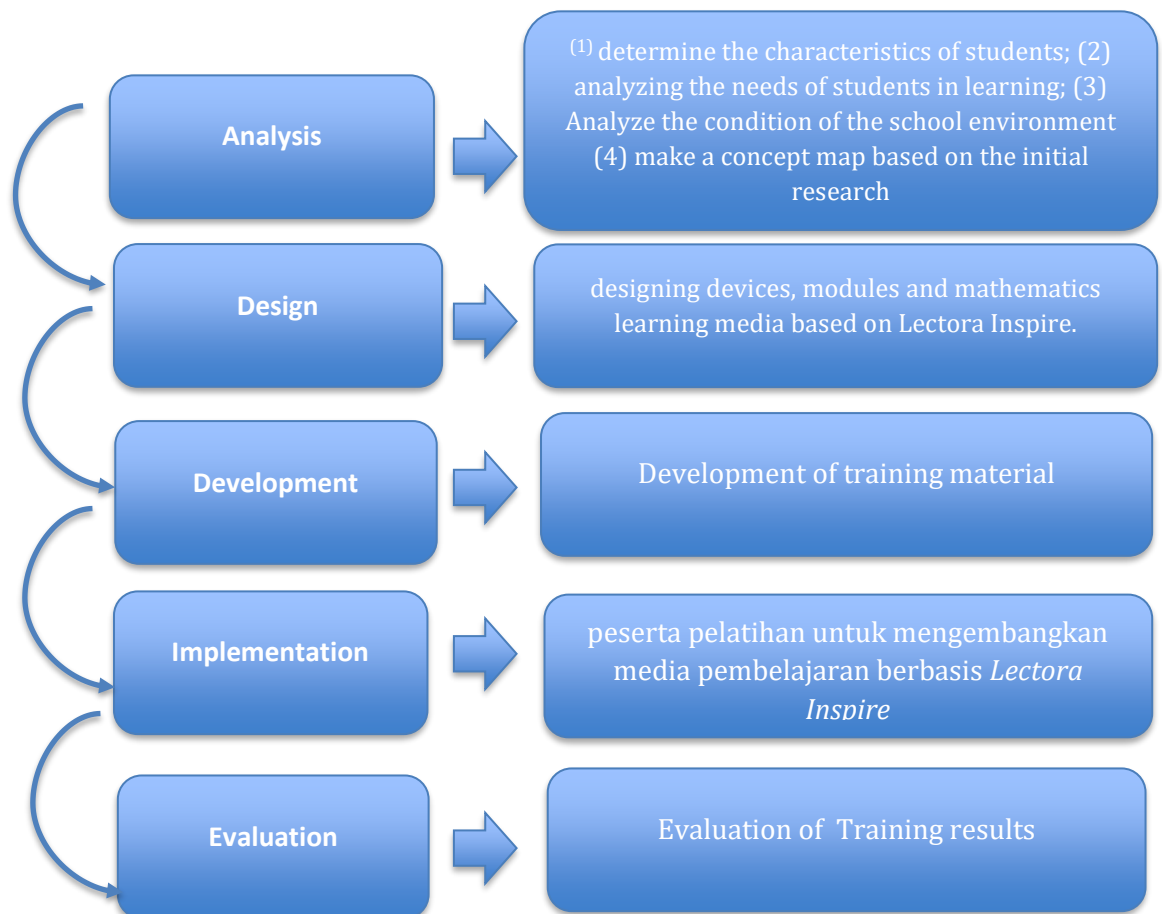


Figure 2. Community Service Activity Flowchart

One of ADDIE's functions is to serve as a guide in building training program tools and infrastructure that are effective, dynamic and support the performance of the training itself. The flowchart of community service activities carried out at SMPN 6 Tanggul can be seen in **Figure 2**.

Assistance to educators does not only end when the service activities are over, but continues continuously until educators are able to develop a meaningful and enjoyable mathematics learning model [8]. This activity was carried out by **2 lecturers** who carried out the analysis, design, development, implementation and evaluation stages. There are two field assistants consisting of **two students**. The field assistant team is tasked with assisting the service team for surveying places of service, developing valid, effective and practical learning media, and assisting in preparing articles on the results of community service.

## RESULTS AND DISCUSSION

This community service activity was carried out at SMP 6 Tanggul. Activities carried out in March-July 2023. SMP 6 Jember is one of the secondary schools located on Jl. PTPN XII Zeelandia Afd Kalisuko, Kramat Sukoharjo, Kec. Tanggul, Jember Regency. Its location in the middle of a plantation, and quite far from the city has resulted in a lack of mentoring activities carried out by lecturers to improve the competence of teachers at SMPN 6 Tanggul. To realize Indonesia's vision of becoming a golden Indonesia in 2045, it is important for the world of education to change its mindset. Education is not only interpreted by academic (scientific) transfers, but also equipped with character [8].

Teachers are required to be more creative, innovative and inspiring in designing quality learning activities to welcome Indonesia's golden generation. Based on interviews that were conducted with school principals and teachers at SMPN 6 Tanggul, the problems that exist in partner schools are that educators complain about the low numeracy skills of students and the minimal use of technology in learning. The teacher also complained about the difficulty of conveying mathematics material so that students feel interested in listening to learning. The teacher is the main key to the success of breeding human resources whose hope is to become human beings who are not only productive but also superior and have character [ 5]. Teachers are required to be more creative, innovative and inspiring in designing quality learning activities to welcome Indonesia's golden generation, especially in learning mathematics. To be able to develop a technology-assisted learning media, educators' digital competencies really need to be built so that educators can be more creative in creating interesting and not boring learning. Based on the facts on the ground, these demands are not in line with the quantity of teacher competency development assistance, where the forum for developing a teacher's pedagogic and professional competencies is still very minimal, especially for teachers at SMPN 6 Tanggul in Kramat Sukoharjo Village.

The solution offered to overcome the problems faced by teachers at SMPN 6 Tanggul, Jember Regency is training , mentoring , and mentoring for educators in developing meaningful and fun learning using lectorsa inspire-based learning media. This activity aims to increase the digital competence and professionalism of educators in partner schools. Through mentoring, it is hoped that educators will no longer find it difficult to carry out fun and meaningful mathematics learning [7]. Community service activities are packaged by applying the ADDIE (Analysis-Design-Development-Implementation-Evaluation) training model. The training cycle consists of five stages, namely: 1) Analysis of teacher needs for mentoring and training, 2) Design of the training approach to be implemented, 3) Development training materials, 4) Implementation of community

service activities which consist of the training, mentoring and mentoring stages of teachers so that teachers are able to develop *Lectora Inspire*-based learning media, and 5) Evaluation, where at this stage an evaluation is carried out on the use of valid, practical and effective learning media and continued with the creation of this article carried out by the community service implementation team. In detail, community service activities are carried out in the following stages:

### **Analysis Phase (Analysis)**

The analysis phase is a process of defining what will be learned by the learning participants, namely conducting a needs assessment (needs analysis), identifying problems (needs), and conducting a task analysis (task analysis). At this stage a preliminary study is carried out which aims to determine the things needed in the implementation of community service and prepare an initial design by conducting an analysis of the objectives and limitations of a material to be delivered . Activities at the analysis stage to determine the components needed for the next development stage, namely: (1) determine the characteristics of students; (2) analyzing the needs of students in learning; (3) Analyze the condition of the school environment (4) make a concept map based on the initial research. Followed by designing a flow chart to provide a clear direction for the development of learning; (5) determine the type of media to be developed; (6) analyze the constraints found [1].

### **Design Stage (Draft)**

This stage is also known as making a blueprint. The stages that need to be carried out in the design process are formulating learning objectives that are SMAR (specific, measurable, applicable, and realistic). Then determine what appropriate learning strategies should be like to achieve these goals. At this stage, the design of devices, modules and mathematics learning media based on *Lectora Inspire* is carried out.

### **Development**

Development is the process of making the blue-print or design a reality. This stage has the goal of producing product development which is carried out through two steps, namely expert assessment followed by revisions and development trials. The product is the final form of a learning tool that has gone through revisions based on input from experts and trial data.

### **Implementation**

Implementation is a real step to implement the developed learning system. That is, at this stage everything that has been developed is installed or set up in such a way according to its role or function so that it can be implemented. The implementation phase consists of three stages, namely Training, Assistance, Guidance. The training was conducted for the first time on developing meaningful and fun learning media based on *Lectora Inspire* by utilizing technology to support learning.

Mentoring and mentoring is carried out after the training, asking 3 or 4 educators for each training participant to develop *Lectora Inspire- based learning media* and implement them in the classes being taught. The mentoring and mentoring is carried out intensively by the lecturers so

that educators from Tanggul 6 Middle School can optimize Lectora Inspire-based mathematics learning and can also utilize technology to create digital trails. Mentoring activities are not only carried out face-to-face but also carried out through virtual meetings or using chat applications.

### Evaluation

The evaluation stage is the stage of evaluating the results of the training given through the administration of questionnaires through the questionnaire. Input in the form of suggestions and



Figure 3. Implementation Phase: Training in SMPN 6 Tanggul

The training was conducted for the first time on the procedures for developing lectora inspire-based mathematics learning media. Some of the activities that will be carried out in this training are as follows:

- Explanation of meaningful and fun learning
- Development of lecture-based learning media inspire.
- Development of media based on the local wisdom of the surrounding culture.
- Advantages of the Lectora Inspire application.

- Utilization of technology as a medium in learning.
- Optimizing the features of the *Lectora Inspire* application.
- The convenience and benefits that can be obtained by educators when utilizing technology in the implementation of learning.

Mentoring and mentoring is carried out after the training, asking 3 or 4 educators for each training participant to develop *Lectora Inspire-based learning media* and implement it in the classes being taught. The mentoring and mentoring is carried out intensively by the lecturers so that educators from SMPN 6 Jember can optimize mathematics learning with the help of *Lectora Inspire* and can also improve students' digital competence.

Training, mentoring and mentoring activities provided to educators at SMPN 6 Tanggul Jember Regency can provide the following results:

- Improving digital, professional and pedagogical competency of educators
- Creative and innovative in developing interesting and meaningful teaching materials.
- Innovate in carrying out learning in the classroom.
- Active in training or training activities about learning.
- Improving students' literacy, numeracy and digital literacy skills.

f. Creating students with character, critical, loving the motherland and able to realize Indonesia's vision of becoming Indonesia Gold in 2045.

After making the *Lectora Inspire-based learning media*, then a pilot activity was carried out on students. The trial was limited to 10 students. In the implementation of limited trials, the use of learning media ran smoothly. After carrying out a limited trial, to measure the increase in students' understanding, the test questions given to students were arranged based on indicators of understanding. So that if students can answer the test correctly and get maximum results, it means that students have met the understanding indicators. This means that if the acquisition of students' pre-test and post-test scores has increased, it indicates that students' understanding has also increased. The results of students' pretest and posttest scores are shown in Figure 4.

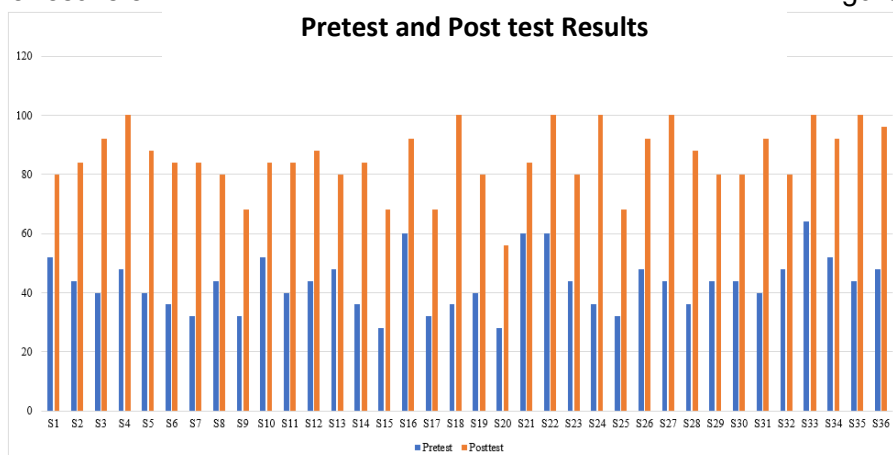


Figure 4. 1 *Pretest* and *Posttest* Results

Based on the *N-Gain* calculation , *the pretest* and *posttest* results were included in the moderate category, meaning that the 15 students experienced an increase in grades but were less than optimal because they were unable to interpret the properties of the graph of the exponential function based on that graph. The results of *the pretest* and *posttest* as a whole can be seen in Appendix 26. Furthermore, the percentage of *N-Gain* is 76%. In accordance with Table 3.6 of the *N-Gain Effectiveness Interpretation Category* , the value is included in the effective category because it has fulfilled the value of  $p > 75\%$  . That is, this learning media is effective in increasing student understanding. The acquisition of *the N-Gain* value is presented in Figure 5.

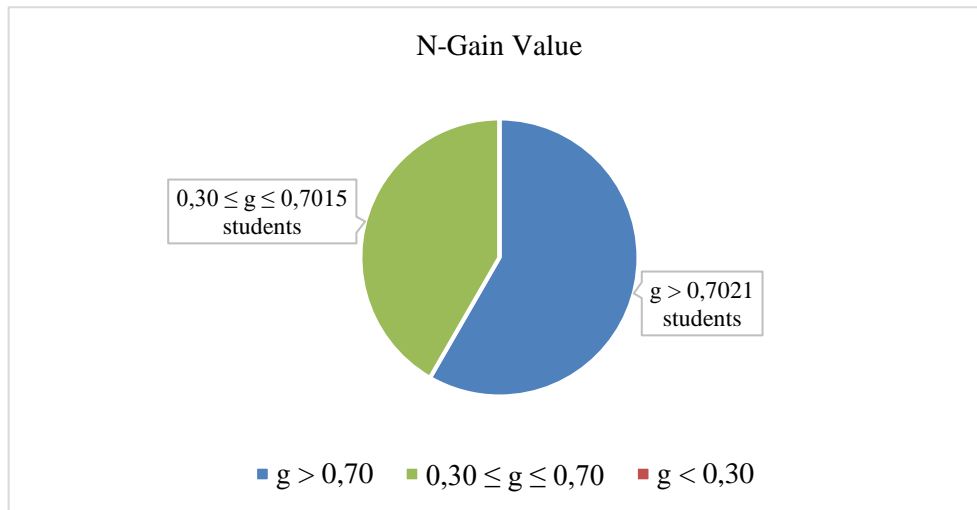


Figure 4. 2 *N-Gain* Value

## CONCLUSSION

The service activities carried out at SMPN 6 Tanggul focus on developing the digital competence of educators . Community service activities in the form of Community Education. Community service activities are packaged by applying the ADDIE (Analysis-Design-Development-Implementation-Evaluation) training model. Based on the results of the questionnaire, it shows that students feel happy with the *Lectora Inspire based learning media* . Students also more easily understand abstract mathematical concepts with the help of interesting learning media. Based on the results of the pre test and post test based on math trail learning, the overall average *N-Gain* is 0.75 . Because this learning media is effective in increasing students' understanding

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