



Development of Articulate Storyline 3 Learning Media Based on Local Wisdom in Traditional Lampung Games In Improving Science Skills

Vandan Wilyanti¹✉, Tesi Yulya², Tika Febriyani³, and Silvi Rahmadani²

¹ Lecturer of Physics Education, UIN Raden Intan Lampung, Lampung, Indonesia
vandanwiliyanti@radenintan.ac.id

² Physics Education, UIN Raden Intan Lampung, Lampung, Indonesia

³ Counseling Guidance Education, UIN Raden Intan Lampung, Lampung, Indonesia

Abstract. Many students find it difficult to research Physics. This is partly because of the view that physics is still far from the actual existence and tradition of networking and teachers no longer use materials related to understanding the Lampung environment, one of which is conventional video games, and instuctors. Now it no longer includes the notion of the environment Lampung local wisdom into the curriculum. Meanwhile, the 2013 curriculum requires contextual assignments so that assignments are meaningful. But in real life Physics is closely related to the reality of life, one of which is culture. In the culture of the Lampung people, physics is presented in many ways, such as traditional games and so on. The type of research used is research and development (Reaserch and Development). The development model by Nieveen consists of three stages, namely the preliminary investigation stage (introduction stage), the prototyping stage (design stage), and the evaluation stage (evaluation stage).Field trials were carried out in class X SMAN 1 IX Koto totaling 8 people. The value of learning outcomes in the form of Pre-test and Post-test scores, then analyzed using N-gain to determine the development of students' scores before and after using the media. Based on the results of the analysis of student learning with an N-gain value of 0.765 or 76,5 which is included in the effective category. So the development of Articulate Storyline 3 Learning Media Based on Local Wisdom of Traditional Lampung Games in Improving Science Skills on momentum and impulse materials is very effective to use.

Keywords: Physics Articulate Storyline · Local Wisdom · Science Skills

1 Introduction

A conscious and systematic effort to build an environment and learning process that allows students to actively realize their potential is called education. The educational process aims to improve the skills of students and build good behavior (Yuliati, 2014: 109). Therefore, education is an essential step towards the creation of youth who have the quality and ability to face and solve problems in social life in each region [1].

© The Author(s) 2023

R. Perdana et al. (Eds.): ICOPE 2022, ASSEHR 746, pp. 756–766, 2023.

https://doi.org/10.2991/978-2-38476-060-2_68

Education is not only a vehicle for transferring science to students, but also for promoting love for their own culture. For this reason, schools are places where education plays a crucial role in protecting culture. This is in accordance with the thoughts of Sudarwan Daninins (2008: 2) which reveals that the reliance function or is also considered an orthodox function means that schools are responsible for paying attention to the cultural values of the community and building authenticity as a human being [2].

However, students tend to get education with a learning system that only provides knowledge to students or is considered dead knowledge, which is a common habit (textbookish) as a result, the insights gained through learning do not mix with the various cultures they have. (Febriyanti, 2017). The purpose of the curriculum is not in line with prioritizing learning everyday knowledge. The curriculum applied in Indonesia is the 2013 curriculum, which takes an academic approach. This approach requires students to understand science from the start and be able to relate it to the physics material they are studying. The environment is a student's initial knowledge. By using the generic models of the teacher as a result, students cannot use this initial knowledge as the basis for creating knowledge. As a result, students are less sensitive to events in the environment that are actually related to physics subjects, because the knowledge they gain is less meaningful and more routine in nature [3].

Science learning needs to be improved so as to create harmony or balance between scientific knowledge itself and the development of scientific attitudes and local wisdom values that develop in the community. So that when developing science education in schools, the socio-cultural environment of students must be seriously considered. This is because it contains real knowledge that is useful in students' lives. Therefore, science education is very beneficial for the students themselves and the community (Asi, 2017). Physics is a part of science that explains observable phenomena based on human experience, rational ideas, experiments (Suwindra, 2016). This shows that everyday life is very close to physics. In physics learning every phenomenon is a statement that focuses on the surrounding environment [4].

According to Permendikbud number 20 of 2016, students are encouraged to link technology, arts, humanities, culture and knowledge about the context of society, themselves, schools, families, nations, countries, and the environment. And because it is an environmental area and an international area, teachers must have a strategy to increase students' understanding of physics material [5].

Local wisdom is a combination of knowledge and wisdom that grows and develops in society, both theologically, cosmologically and sociologically. Education based on local wisdom is education with teaching and learning activities that have a contextual nature, by teaching students to always be close to concrete situations that are faced at any time [6].

Local wisdom is a traditionally institutionalized philosophy for managing nature and human resources, formulated to clarify the community's world view of traditional or eternal natural and social phenomena in the region, which stem from values, ethics, and behavior. This view of life is the identity of the community that distinguishes it from other groups (Musanna, 2012: 333–334).

Juridical foundations of national policies based on regional superiority/regional wisdom, including:

1. Law Number 20 RI Chapter 14 Article 50 (5) of 2003 is the Sumba Education Journal Vol. 01, No. Edition 02, September 2017 confirms that the government controls basic, secondary and education units. Based on local education.
2. Government regulations No. 17 and 34 of 2010 state "Education based on regional excellence is education organized after meeting national education standards and strengthening regional competitiveness and/or comparative advantage".
3. Government Regulation Number 17 Year 2010 Article 35 (2) — Government/City Government Develops Educational Programs and/or Business Units That Meet or Approach National Education Standards To Develop International Standard Education and/or Advance. Based on the benefits of the program and / or units and / or regions." In other words, the 2010-2014 Ministry of National Education Strategic Plan states: Education needs to encourage the importance of knowledge of ecosystem sustainability and balance, namely humans are part of the ecosystem.

The purpose of education based on local wisdom As mentioned by Jamal Ma'mur Asmani (2012:41).

- a) Knowing various aspects related to local wisdom in order to understand the local benefits of the area where students live.
- b) Compete domestically and globally, be able to exploit resources and be further involved in services/services or other matters relating to virtues to generate revenue while maintaining superior variety, traditions and resources from the region.
- c) Students love their homeland, face the future with confidence, and seek to explore the potential of their area so that they can develop rapidly in line with the demands of the global and information era.

However, over time, local wisdom has declined and is threatened with extinction because it is considered to be the difference between local science and science. Meanwhile, local wisdom includes learning activities that can be imitated and grown to be taught in physics subjects at school (Hariastuti et al., 2020). The era of globalization has unwittingly become a part of life. Advances in science and technology have helped loosen these values [7].

Traditional games are one of the many local wisdoms that can be included in physics lessons in a school, namely traditional games.[8] Lampung province is one of the regions in Indonesia that has a diversity of local wisdom. The unique heritage of Lampung includes tapis cloth, intestine embroidery, cigars, ancient performances, and various other forms of tradition [9].

The game is no stranger to students and even the community, so that it becomes a guide for studying physics. For this reason, researchers are interested in exploring it. Meaningful physics learning needs to be able to understand the relationship between traditional games in society and physics material so that the objectives of the 2013 curriculum can be implemented properly.

Lampung traditional games related to momentum and impulse physics are:



Fig. 1. Betung Betung Tool in the Ministry of Education and Culture Documentation, 2017

1.1 Betung

This game is known using the term “Jejok”. The game Bedil Betung originates from North Lampung district which is made of bamboo.

The gun game consists of various tools, namely sleeves, ammunition and guns. As for how to play the Betung Betung game, that is by pushing ammunition (fruit leak) with a gun and hand and body movements. Then the hand presses the gun. Efforts to push the hand when given a force using the hand then the tool will move closer to the fruit leak. So at that time there was a collision between the bamboo and the leak fruit, which made the leak fruit crash into the opponent. In the leak there is a change in momentum due to a given force at a certain time interval. The force that acts is called the impulse force.

1.2 Pidak

The game that comes from North Lampung is called Pidak. Pidak game uses 10 pieces of rubber on each player. Pidak game is played by 2 players. The way to play the game is that 2 pieces are arranged in a pile and then hit by the player using their hands. When the rubber fruit is beaten, the player whose rubber fruit is crushed or broken is considered to have lost. Meanwhile, the one with the most unbroken rubber is the winner. When pressing the 2 rubbers that are arranged, then there is a collision [10].

Based on the statement above, the researcher will use the Articulate Storyline software application to create learning media which will later assist educators in providing learning materials and understanding physics material, especially Momentum and impulses. Articulate Storyline Learning Media is a calm unit that functions as a vehicle



Fig. 2. Betung Betung Tool in the Ministry of Education and Culture Documentation, 2017

for reading or expressing. The means of learning using this software is no less interesting using other means of reciprocal relationships [11].

Articulate Storyline is a strategy that is able to support designers in digital-based modern learning based on beginners to professionals. [12] Articulate Storyline 3 is a computer program which is a tool for developing electronic learning (e-learning). Articulate Storyline Tiga is presented as an application for making interactive learning media that is easy and fun (Diane Elkins, et al., 2017) [13].

Articulate Storyline can produce interesting, fun, and interactive learning media with scenes and slides combined with text, images, animation, video, audio, and quiz menu support. Students can directly use and interact with the material they are learning, with what Ashley Cheerson said. In short, Clear Storyline is an application for creating learning content and learning tests on Storyline (Chiasson, 2016). This is very useful in the online learning process carried out during the covid19 pandemic because students can access it online. [14] The final form obtained from this software consists of web-based rides or HTML5 users, tablets, Android, and Macbook iOS. [15] The advantages of Articulate Storyline are:

- a. Publish topics or productions to HTML5, flash for use on iPad and Android apps.
- b. Student progress can be reviewed and tracked using quizzes of 20 different questions or to create a question bank imported from existing text.
- c. Due to the "Layer" and "Trigger" features, objects reflect learning actions. This is intended to form a user relationship that moves together.
- d. Users can create, insert, and style microphones, videos, and images to integrate multimedia objectives into the coursework.
- e. The character bank (emoji) has over 47,000 illustrations and a mix of several photo characters. We adjust poses and expressions to help students engage in learning material [16] Disadvantages are:
- f. This software cannot create mp4 videos.
- g. The foundation style does not offer additional characteristics, does not support platinum class, does not support priority email, live web chat and screen deployment.
- h. Software can't be used on macbook
- i. This spreading unit is more expensive to purchase than other manufacturing tools [17]

Learning media articulating the articulate storyline has been shown to increase student engagement and influence on students' cognitive abilities (Kartiani & Anam, 2019; Setyaningsih, 2017; Sindu et al., 2020) [18].

2 Research Methodology

This research uses the type of R&D. [17] In this study, using the example of the development of Nieveen. The design of the development model by Nieveen consists of three stages, namely preliminary investigation (introduction stage), prototyping (design stage), and evaluation (evaluation stage). At the design stage (prototyping), a media design is made in accordance with local wisdom, validation is carried out, and it is influenced by the feasibility of the media to be developed. Validation is done by the validator. The last stage is the evaluation stage using field tests [19].

Table 1. The Classification of The Interpretation of The Effectiveness of N-Gain

Percentage (%)	Interpretation
< 40	Ineffective
40–55	Less effective
56–75	Effective enough
> 76	Effective

In this phase, we use Articulate Storyline based on local wisdom to get data on student learning outcomes. Learning outcomes are measured through pre and post test questions to find out the learning output of students using articulate storyline media. The value data obtained were analyzed using Ngain with the following equation:

$$N - gain = \frac{S_{post-test} - S_{pre-test}}{S_{maximum} - S_{pre-test}}$$

Information:

N-gain = Yield Difference

S post test = Average score post test

S Pre test = Average score of pretest

Maximum = Maximum test score [20]

The classification of the interpretation of the effectiveness of N-Gain according to Hake (1998: 65) can be seen in the following Table 1:

3 Results and Discussion

In the initial problem analysis process, observations and interviews were conducted with physics teachers at SMAN 1 IX Koto. Based on these observations and interviews, SMAN IIX Koto still uses printed books and teaching materials.

The design stage, designing the articulate storyline. Draft 1 Learning Media Articulate Storyline 3 Based on.

Local Wisdom Traditional Games Lampung In Improving Science Skills obtained in the prototyping stage there are 2 activities, namely learning activities and learning activities. The level of learning uses support in this study, namely lesson plans, syllabus, assessment instruments in the form of pretest and posttest questions.

The design stage was carried out using an articulate storyline draft based on local wisdom of the Lampung traditional game that was developed. Draft I describes the media articulate storyline based on local knowledge created during the prototyping phase. It contains two learning activities. That is, learning activity 1 includes momentum and impulse material, and learning activity 2 includes collision material. This phase also includes the creation of learning tools used to support the survey, such as syllabus, lesson plans, pre and post test question style assessment tools, and learning implementation tools.

Furthermore, the draft I Articulate Storyline produced from the product design stage was checked for feasibility by experts. Qualitative data in the form of validator comments and general assessments will be supporting data to improve the clarity of the physics storyline based on local wisdom developed (Table 2).

Furthermore, field tests were conducted. At the assessment stage at SMAN 1 IX Koto, students of class X became the research subjects, totaling 8 people. The learning outcomes of students before and after using the articulate storyline media based on local wisdom, the learning output values are in the form of Pre-test and Post-test scores. Then to find out the development of student scores after and before using the articulate storyline media, an analysis stage was carried out using N-gain. The following data analysis of student learning outcomes is shown in the following Table 3:

From the student learning analysis table above, we can conclude that the class X students of SMAN 1 IX Koto after using Articulate Storyline are in the category of Effectively used in the learning process. This is in accordance with the criteria based on Hake (1998).

Table 2. Qualitative Data From Validators

Developed media	Validator	General Rating
Articulate Storyline 3 Learning Media Based on Local Wisdom in Traditional Lampung Games	Lecturer of Physics Learning Media	Very worth using
Articulate Storyline 3 Learning Media Based on Local Wisdom in Traditional Lampung Games	Physics teacher at SMAN 1 IX Koto	Very Worth Using

Table 3. Analysis of Learning Outcomes

Component	Physics Class X	
	Pretest	Posttest
Total students	8 people	8 people
The highest score	100	100
Lowest Value	40	70
N-gain Score	0.765625	
Percent	76.5625	
Category	Effective	

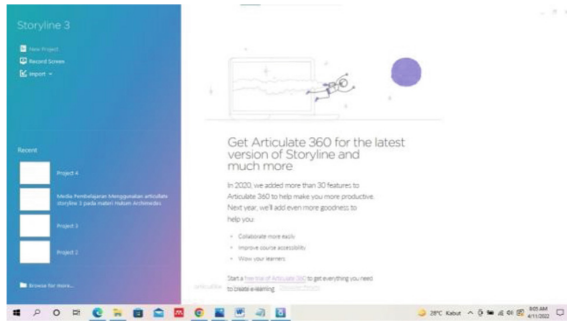


Fig. 3. Opening Articulate Storyline 3 application via desktop

The next stage is the prototyping (design stage), which is designing the media articulate storyline, the stages are as follows:

Then double click until the application opens. Then create the initial slide of the slide. Then click New project.

On the first page, we can change the page size. Because it's better to resize before we add content. The trick is to click on the Design menu.

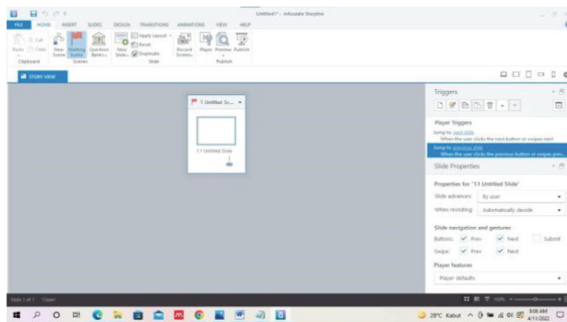


Fig. 4. First Slide

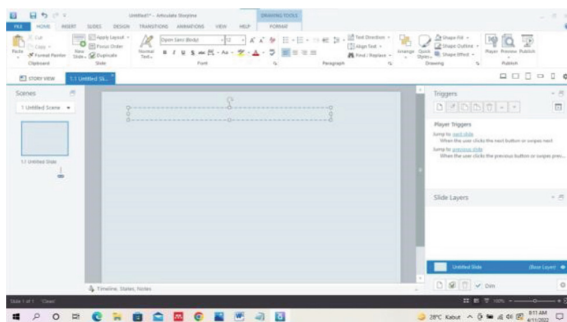


Fig. 5. Creating a Design

At this stage, we can add images or animations or change the background directly from the apk or click the Insert menu, then select Picture.

How to add text is by clicking the insert menu, then selecting Text Box. Change the font type, font size or font color according to your wishes. Fill the slide with the material we want such as momentum and impulse material.

Storyline has various forms of buttons that help us in controlling the learning media that is created. The shape of the buttons consists of various shapes there are rectangles, arrows, checkbox styles and others. The method is:

1. First we have to go to the Insert menu, then select Button.
2. Click the down arrow provided and select the shape of the button/button to be created.
3. We can change the style of the selected button.
4. We can also change the contents of the Button / Button with an icon, by using the Button Icons feature

After all the designs are finished, we can immediately publish them by clicking the top right corner of the media.

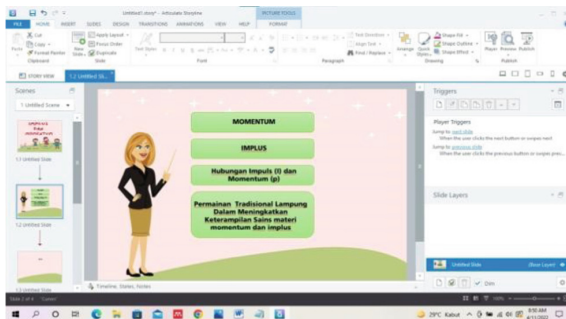


Fig. 6. Adding Text.

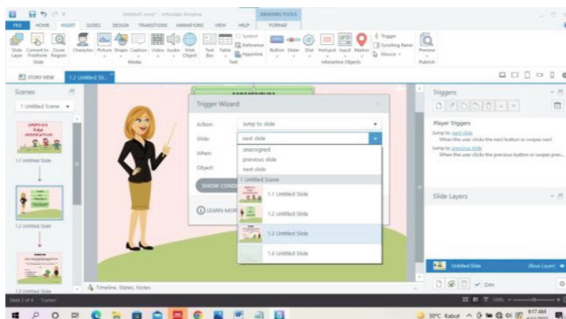


Fig. 7. Creating a Button

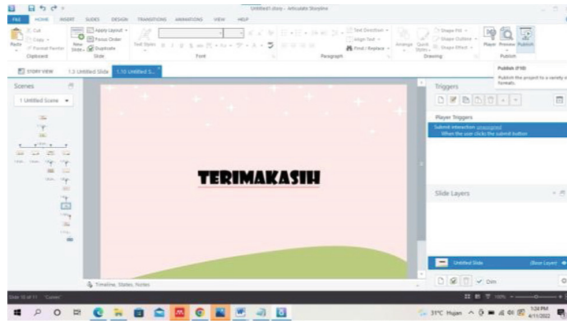


Fig. 8. Publish

4 Conclusions

Based on the results of the study, teacher validation and student learning outcomes after using the Articulate Storyline 3 Learning Vehicle Based on Local Wisdom, Traditional Lampung Games in Improving Science Skills on momentum and impulse materials with an N-gain value of 0.76 or 76.5 which is included in the effective category. So articulate media is very effectively used by students, especially during the current pandemic.

Based on the results of the research conducted, the suggestions put forward are: For the school can make media using materials that are not the same according to the needs of students, and to make it easier for students to know the material other than that the media can also be accessed without using the internet. And for researchers, it is better to use materials that are not the same, so as to produce different media articulate storylines.

References

1. Bakhtiar, D. 2016. Teaching materials based on local wisdom are integrated with STM (Science, Technology, and Society) in physics subjects. National Seminar on Education. 21 May 2016. 650- 660.
2. HDPingge. 2017. Local Wisdom and Its Application in Schools. Sumba Educational Journal. Vol. 01, No. 02. Pg:129.
3. NL Makheasy, Subiki, Supeno. 2019. Development of a Physics Module Based on Local Wisdom of Central Kalimantan Traditional Games on Momentum and Impulse Material. Journal of Learning Physics, Vol.8 No.3. Pg:182.
4. PLElida Rosadi, NKKapi, P. Yasa. 2019. The Application of Science Teaching Materials Based on Local Cultural Wisdom to Improve Activities and Physics Learning Achievements of Class X Mipa 7 Students at State Senior High Schools. Journal of Physics Education Undiksha, Vol. 9 No. 2 of 2019 p-ISSN : 25992554 (Print), e-ISSN : 2599-2562 (online). Pages: 76-77.
5. Ministry of Education and Culture. 2016. Government Regulation of the Republic of Indonesia Number 22 of 2016 concerning Standards for Primary and Secondary Education, Jakarta: Ministry of Education and Culture.
6. A. Angramayeni, Berti Yolida, Rini Rita, T marpaung. 2018. The Effectiveness of Local Wisdom-Based Teaching Materials on Students' Activities and Learning Outcomes
7. Rumiati, et al. 2021. Analysis of Mechanical Energy Physics Concepts in Traditional Stilt Games as Physics Learning Materials. JPF (Journal of Physics Education) FKIP UM Metro p- Vol. 9, No. 2, September 2021, pp. 131-146.

8. HDPingge. 2017. Local Wisdom and Its Application in Schools. *Sumba Educational Journal*. Vol. 01, No. 02. Pg:131–132.
9. Loviana, S., Islamuddin, AM, Damayanti, A., Mahfud, MK, & Merliza, P. (2020). Ethnomathematics on filter cloth and traditional Lampung houses. *Filter: Journal of Scientific Research*, 4(1), 94–110.
10. P. Merliza. 2021. Ethnomathematical Studies: Exploration of Mathematical Concepts in Traditional Games in Lampung Province. *Suska Journal of Mathematics Education* (p-ISSN: 2477–4758/e-ISSN: 2540–9670) Vol. 7, No. 1, 2021, p. 24–26.
11. stro Purnama, "Development of Interactive Learning Media Using Articulate Storyline Software in Basic Electronics Engineering Subject Class X TEI at SMK Negeri 2 Probolinggo," *Journal of Electrical Engineering Education* 2, no. 1 (2018): 275–279.
12. Satriawaty Mallu, 2020. Implementation of Articulate Storylines in Making Digital Teaching Materials at Makassar Professional STMIK|| (2020): 7–9.
13. N. Aprilia 2021. Development Of Physical Learning Using The Articulate Storyline 3 Application In Newton's Law For Class X. *JOM FKIP - UR Volume 8 Edition 1 January–June 2021*. Pages:3–5.
14. Safira, AD, Sarifah, I., & Sekaringtyas, T. (2021). Development of interactive learning media based on web articulate storyline in science learning in grade V elementary school. *Prima Magistra: Scientific Journal of Education*, 2(2). <https://doi.org/10.37478/jpm.v2i2.1109>
15. Riyanto, sons of eka prilnali and indelarko hendi, 2009 "Development of desktop and web-based geographic information system applications" Publisher: ISBN: 978–979–1078–70–2., 2009.
16. Amri Tanduk Langi Carlina Amri, "Computer Assisted Language Learning" (yogyakarta: Budi Utama, 2019), 144.
17. Amiroh, Proficient in Creating Articulate Storyline Interactive Media (Central Java: Cipta Artha Media, 2019).
18. S. Yolanda, Retno Winarni, Septi Yulisitiani. 2022. The New Way Improve Learners' Speaking Skills: Picture and Picture Learning Media Based on Articulate Storyline. *Journal of Education Technology* Volume 6, Number 1. <https://ejournal.undiksha.ac.id/index.php/JET>
19. Sugiyono, Quantitative, Qualitative and R&D Research Methods, ||2014.
20. Nieveen, N. 2006. Educational design research: the value of variety. In Van den Akker, J. Gravemeijer, K., McKenney, S. and Nieveen, N. (Eds). *Educational design research*. London: Routledge.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

