

**Development of PjBL e-modules based on ispring suite on
alternative energy sources of water for elementary students**

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Abstract: *The aim of this research is to implement the E-Module and determine the media development, feasibility and practicality of the E-Module. The type of research used in this research is research and development (Research and Development) with the ADDIE development model. The subjects of this research were teachers and students of class VI SDN Gadang 3 Malang. The research results showed that the E-Module was declared very feasible based on due diligence, the percentage of media experts was 97.5%, material experts 92.5% and language experts 95.8% so that the learning media was suitable for testing. The practicality test given by the teacher obtained 94.5%, students in small groups 95.1% and large group student questionnaires 92.8%, so the module was declared "Very Practical" and can be interesting and easy to use by students.*

Keywords: *E-Module; Ispring suite; PjBL.*

Introduction

In the 21st century learning is demanded to be technology-based and education is currently becoming increasingly important to ensure students have learning and innovation skills as well as skills in using technology and information media. According to Greenstein(2012), 21st century students must master science, have skills, be metacognitive, be able to think critically and creatively, even be able to communicate or collaborate effectively. Learning in schools is required to apply 4C abilities (Critical Thinking, Communication, Collaboration, Creativity). This learning integrates various aspects including knowledge skills, soft skills, as well as attitudes and mastery of technology(Widayat, 2018). According to Firmansyah & Jiwandono(2022), learning in the 21st century must be student centered and stimulate problem solving abilities in students.

Based on observations at SDN Gadang 3 Malang City in class VI on November 14, 2023, it turned out that they were still using the 2013 curriculum. teachers are limited so they are less interesting in explaining the material of electrical circuits. Some students have not been able to understand the contents of the subject matter properly, the information provided is not optimal, and students do not have a real picture of the series. Overall, there are still some educators who have difficulty using technology, therefore teachers must master technology. Darmawan(2015:133), said that using technology as a medium can increase students' interest in learning and can help provide a complete understanding for students.

Media technology in the learning process offers many benefits for educators (teachers) and students (students). According to Sudjana, N., & Rivai(2014), learning media is everything that is contained in a learning device that is used as a learning environment for students and has previously been regulated by educators. The learning process is influenced by various learning components, one of which is learning media. Gafur(2012:103-104)states that

learning media is an important part of planning, implementing and evaluating learning. Learning media can attract students to learn because of the presence of pictures, text, and learning videos and can make it easier for students to understand the material. In addition, learning media is a communication tool as a messenger from the giver to the recipient of the message can be used to convey learning objectives (Yaumi,2017). Thus, students can independently carry out the learning process through project-based learning e-modules.

Project Based Learning (PjBL) is a project-based learning model where students are faced with real-world problems that are considered meaningful and then act collaboratively to create solutions to these problems.(EE Kurniawati, 2017). Project Based Learning (PjBL) is a learning model that emphasizes critical, creative thinking, problem solving, and communication. Thus, in the implementation of learning students will show their creativity and the results of understanding the material that has been delivered. Rahmawati & Devi(2020), said that the Project Based Learning (PjBL) learning model invites students to create a project that produces products from students' thinking independently.

The Project Based Learning learning method allows students to be able to work independently or in groups in producing project results that originate from everyday life problems.(Sani, 2014). Project Based Learning Steps According to Jauhariyyah(2017)namely Determining Fundamental Questions, Designing Project Plans, Arranging Schedules, Monitoring students and project progress, Testing Results, Evaluating Experience. Project Based Learning (PjBL) is a learning model that emphasizes critical, creative thinking, problem solving, and communication. Advantages of Project Based Learning (PJBL) According to Jauhariyyah(2017), namely increasing student motivation, increasing problem solving abilities, increasing collaboration, increasing resource management skills, increasing resource management skills. In addition, there are also weaknesses in Project Based Learning (PjBL). Most "real world" problems are inseparable from disciplinary problems. Requires a lot of money.

In order to support the effectiveness of project-based learning, it is necessary to develop a learning media, one of which is an e-module that can later be used by teachers and students in a learning project. In line with Paruli's research(2021), it is suggested to teachers to create learning that is able to make students grow self-confidence and develop student creativity.

E-Modules are self-designed digitization-based non-printing text book products that can be accessed and used by students via computers, laptops, tablets and even smartphones for learning.(Asmiyunda et al., 2018). In the 21st century learning era, many modules have been developed as electronic modules or e-modules. The existence of an electronic module makes it easier for students to follow the learning process independently and provides newness in learning (Ninawati et al., 2021). Science and Technology (Science and Technology) is developing very rapidly in various fields, one of which is in the field of education to support the learning process so that it can be done easily. Alfiandra, & Mulyadi(2016), states that electronic-based learning is learning that utilizes advances in science and technology, communication and informatics. Therefore, teachers are required to be able to develop and use electronic modules in the learning process. Prime et al.(2017), said that e-modules are

learning resources that are modified and developed in a structured manner, presented in digital form, containing video, audio, animation, and interesting and communicative learning concepts to achieve learning objectives. In this context, teachers as educators play a very important role in the formation and development of school knowledge, apart from being responsible for implementing various innovative learning products. According to Himmah & Martini(2017), communicative media can present material information or concepts in the media as a source of messages to students so that they can improve student learning outcomes and make students happy, enthusiastic, interested in the material being studied.

E-Module Function According to Tety Yunara Megadani(2018), namely independent teaching materials, changing the role of educators, tools used for evaluation, increasing teacher creativity. The advantages of this E-Module product are that the application contains complete material, has a beautiful appearance, and is easy to use, enabling students to study independently. The weakness of this E-Module product is the limitation of the application program which can only be used on the Android system, and cannot be run on cellphones with other operating systems such as iOS and Windows Phone.(Ninawati et al., 2021). E-Modules will be designed or developed through the I-Spring Suite software to attract students to use them and train students to learn independently.

Ispring is a tool that converts presentation files with PowerPoint to be made in flash form. Flash multimedia based on PowerPoint & Ispring has convenience in terms of the manufacturing process and is able to display various application programs such as slides, graphics, images, animations, audio, and video so that the learning media used becomes more complete, more interesting, and easy to understand for students. . According to Sholeh(2018), iSpring Suite is an additional application for Microsoft Power Point, where iSpring Suite is able to change/convert presentations (PPT/PPS) to SWF (Shockwave Flash). The results of iSpring Suite-based media development can be converted in the form of flash, power point, HTML5, and MP4 video formats, or can even be used as mobile-based media.(Pritakinanthi, 2017). This Ispring Suite software is accessed via Microsoft PowerPoint because this Ispring Suite software is add-ons or software that can add to the functions of the main software.

By using this Ispring Suite software we can make presentations with interesting interactive animations according to our wishes that have been made in powerpoint. The advantage that Ispring Suite has is that we can design our presentations in powerpoint and later we convert them into flash files. These flash files can be opened on any platform that supports flash files. In this ispring suite, we can also make quiz questions with the help of quiziz. In line with the research of Cahyawati & Yasa(2021)the development of android-based interactive media on the Ispring application can support students in the learning and learning process. This media can help students learn independently, the media contains material supported by animation, videos, pictures of quiz questions along with answer keys.

In the upper grades at the elementary school level, there are several subject matter, one of which is the content of Natural Sciences (IPA). Science has certain characteristics that are different from other subject matter, the science curriculum aims to develop conceptual understanding and procedural understanding(Sayekti, 2019). In addition, Natural Science (IPA) also has special characteristics, namely factual natural phenomena, whether in the form

of reality or events and their causal relationships.(Asih, 2014). The purpose of learning science in elementary school is to be mutually sustainable between three aspects, namely cognitive, affective, and psychomotor aspects. Through learning science, students are expected to be able to develop curiosity in every learning activity.

According to previous research conducted by Yaneta et al.,(2021)in his research which explains that the research results are very feasible, practical and effective for use as learning media. The difference is that researchers apply the PjBL IPA E-Module adding accompaniment music, games on quiziz, exercises on understanding questions on quiziz, material summaries, glossaries. Whereas previous research was to improve Javanese script learning for students to make them interested in learning Javanese script material for grade 4 at SD Negeri 04 Tambakasri.

Not only that, research that has been carried out by Nuraini et al.,(2020)stated that in the research on the development of Ispring Suite Power Point Learning Media it was feasible to use and could be used as a companion medium in class IV SD. The difference with the current research is that using the PjBL Science E-Module, the researchers added a summary of the material, learning videos, and a glossary. Whereas previous research applied the PPKN E-Module only to display material, SK and KD, evaluation and games.

In addition, the research conducted by Widyawati et al.,(2022)argues that the use of media is feasible to be implemented during learning. The difference in the current research is that the researcher applies the E-Module to science game subjects on quiziz, exercises on comprehension questions on quiziz, material summaries, glossaries and uses the PjBL model. Whereas previous research applied interactive learning mathematics using the Ispring Suite on Social Arithmetic Material, interactive learning media applications can be more interesting and can be used as needed.

In line with the research above, the researchers took the initiative to develop an Ispring Suite-based PjBL E-Module with a novelty, namely alternative energy materials. This media is supported by an attractive appearance, such as the initial display of an interactive menu, there is a welcome sound, music accompaniment, games on quiziz, exercises on understanding questions on quiziz, material summaries, glossaries, using the PjBL model.

Based on this explanation, in order to enable students to learn independently and achieve the expected learning outcomes, especially in science material, it is necessary to develop learning media that are suitable for the 21st century, namely digital-based learning media, one of which is the use of e-modules in learning.

From the description above, the researcher raised the title "Development of PjBL E-Modules Based on Ispring Suite of Alternative Energy Materials in Science Subjects for Grade VI Students at SDN Gadang 3 Malang", The aim of this research is to implement the results of the E-Module and determine the media development, feasibility and practicality of the PjBL E-Module Based on the Ispring Suite.

Method

The research method used is R&D (Research and Development). According to Nurhalimah et al.,(2017)explained that the type of research and development R&D (Research and Development) has research research procedures that are used to produce certain products, and test the effectiveness of these products. This research also uses a development research model, namely ADDIE (Analysis, Development, Design, Implementation, and Evaluate). According to Puspasari(2019), this ADDIE model is a model that is often used in instructional development, this model can also be used in various forms of product development including models, learning methods, learning strategies, media and teaching materials. Design validation test, conducted to find out the shortcomings of the media made.



Picture 1 The flow of research implementation

This validation was carried out by several experts, namely media experts, material experts and language experts. This research was conducted for sixth grade students at SDN Gadang 3 Malang. The subject of this research trial consisted of 1 teacher and a limited field test from a small group of 10 grade VI students, a limited field test from a large group of 20 class VI students at SDN Gadang 3 Malang City.

Data collection techniques and instruments in this study included observation, interviews, documentation, product validation sheets, and teacher and student response questionnaire sheets. The data analysis technique used to process product test results data is qualitative data analysis and quantitative data analysis.

PjBL Based Ispring E-Module Eligibility Criteria, i.e. < 21% Very Ineligible, 21% - 40% Ineligible, 41% - 60% Adequate, 61% - 80% Eligible 81% - 100% Very Eligible (Rukoyatun, 2018). Based on the feasibility table for the PjBL-Based Ispring E-Module, digital science media can be said to be feasible if it gets a percentage of more than 61% through validation questionnaires from each validator, namely media expert validators, material experts and language experts. PjBL-Based Ispring E-Module Practicality Criteria, namely 0% - 25% Impractical, 26% - 50% Less Practical, 51% - 75% Practical, 76% - 100% Very Practical (Sahida, 2018).

Results and Discussion

PjBL E-Module development research based on the ispring application using the ADDIE research method includes Analysis, Design, Development, Implementation and Evaluation. The analysis phase, the researcher did analysis of some of the problems that occur during learning activities carried out while at school. At this stage, interviews were conducted with

teachers and grade VI students at SDN Gadang 3 Malang City with the aim of strengthening problem analysis.

The design stage, at the design stage of the PjBL E-Module based on the ispring application, is adjusted to the results of the analysis. The first stage of design is to make materials that support alternative energy according to basic competencies and learning indicators in natural science content. Material planning is made in Microsoft Power Point which consists of pictures, music, videos, animations, quiz questions, and answer keys. The e-module is used by Grade VI elementary school students in semester 1. The second stage, producing media is adding images, videos, animations, backgrounds, and interactivity to make it more interesting. The animation in the e-module is in the form of moving from one slide to the next, or animation on pictures and text to make it more interesting.

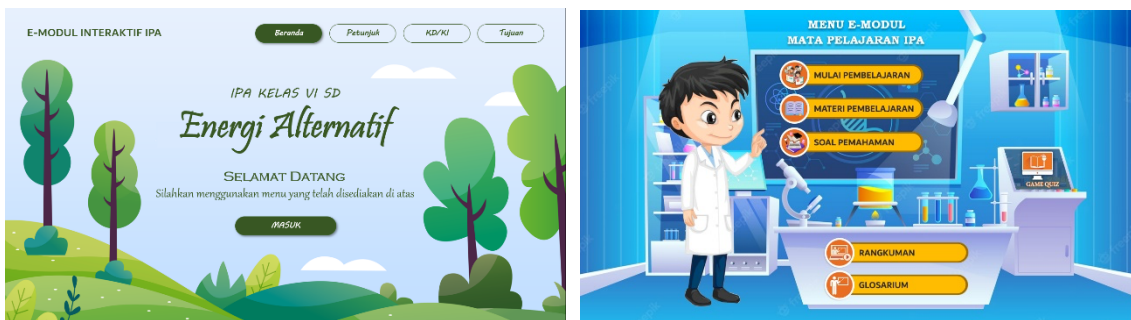


Figure 2. The initial design of the Pjbl e-module is based on the ispring application

Stagedevelopment, this stage is an advanced stage by concretizing all the concepts that have been designed at the design stage. Furthermore, the PjBL E-Module based on the ispring application was validated by validator expert lecturers namely media experts, material experts and language experts. The results of the validation of the PjBL E-Module based on the ispring application show that the results of the due diligence based on the validation of media experts obtained a percentage of 97.5%. with the "Very Eligible" category, the acquisition of material experts was 92.5% in the "Very Eligible" category, and linguists were 95.8%. with the category "Very Eligible".

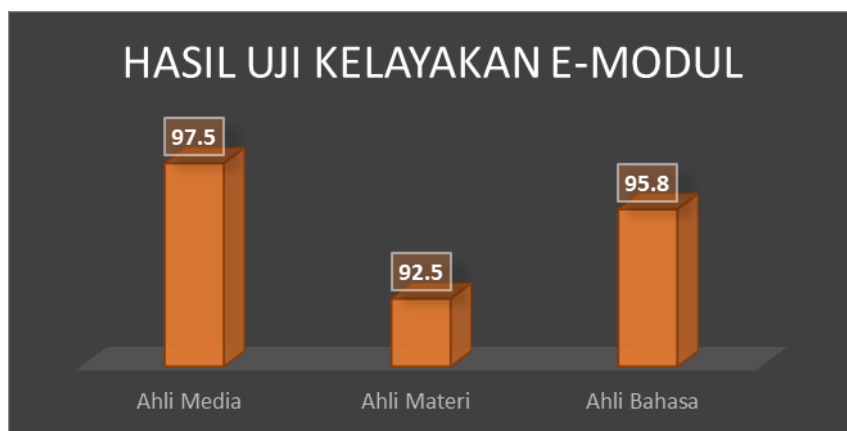


Figure 3. The feasibility results of Pjbl-based e-modulesispring suite

Implementation stage, stageThis implementation was carried out by testing the practicality of the teacher, testing on small groups of students totaling 10 students, and

testing on large group students totaling 20 students of class VI SDN Gadang 3 Malang City as research subjects. Researchers teach science subjects on PjBL-based alternative energy materials. Questionnaires that have been given to teachers and students are asked to fill in according to the filling instructions.



Figure 4. Implementation of the ispring suite-based Pjbl e-module test for class VI students

The results of the practicality test by the teacher obtained an average percentage of 94.5% in the "Very Practical" category. Assessment of the results of student responses in field trials is limited to small groups getting a percentage of 95.1%, in large groups getting a percentage of 92.8%

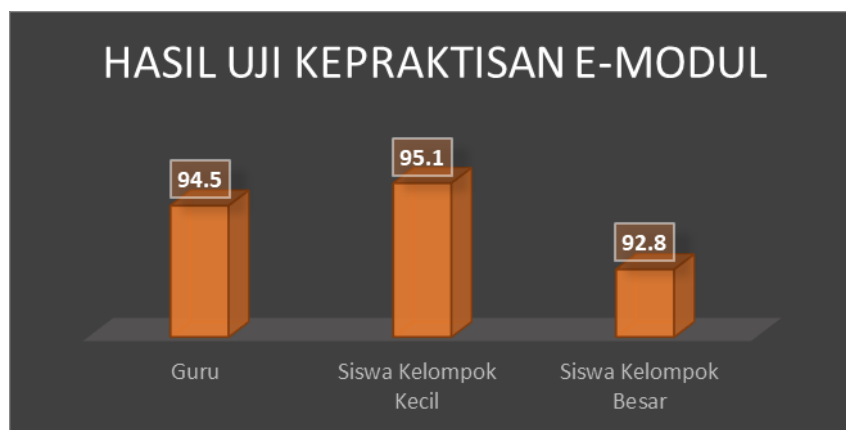


Figure 5. The practical results of the Pjbl-based e-module ispring suite

Evaluation stage. The last stage is the evaluation stage where the researcher evaluates the research results. However, this research only reached the implementation stage and reached the practicality test, this was due to limited time, costs and research staff.

1. Feasibility of Ispring Suite Based PjBL E-Module

This E-Module will later be tested on several experts, namely media experts, material experts and language experts. The results of the validation of the PjBL E-Module based on the ispring application show that the results of the due diligence based on the validation of media experts obtained a percentage of 97.5%. with the "Very Eligible" category, the acquisition of material experts was 92.5% in the "Very Eligible" category, and linguists were 95.8%. with the category "Very Eligible".

According to Hala(2015), if all aspects of the assessment have reached the validity criteria, then the developed media is declared fit for use in learning. In addition, the learning device is said to be valid because the expert's assessment shows that the development of the device has internal consistency between each aspect that is assessed, namely the relationship between the components in the learning device(Mustami, 2015).

In line with Paruli's research(2021), it is suggested to teachers to create learning that is able to make students grow self-confidence and develop student creativity. As an effort to improve the teaching and learning process in the classroom, one of the teachers uses the Project Based Learning (PjBL) learning model assisted by the iSpring Suite-Based PjBL E-Module.

This is in line with the validation criteria of Nuraini et al.,(2020)The valid value is obtained by the achievement of the assessment indicators in the form of the suitability of the presentation of learning material with indicators of achievement of competence, media support for instilling concepts, the suitability of learning material with learning objectives, the correctness of the description of learning material, the order in which learning material is presented, the suitability of images and animations with the description of learning material, the suitability of the practice questions with the learning objectives, and the clarity of the description of the learning material.

2. Practicality of Video Scribe-Based Science Digital Media

The practicality of the Ispring Suite-Based PjBL E-Module can be known through the implementation stage according to the ADDIE stage. The results of the practicality assessment of interactive media were obtained from the assessment of prospective users (teachers) and student assessments. Based on the results of the assessment obtained from the teacher getting a percentage of 94.5% in the "Very Practical" category. Assessments carried out by students in small groups after the implementation process was carried out obtained a percentage of 95.1% from limited field trials and in large groups obtained a percentage of 92.8% so that the E-Module developed was Very Practical to be used in alternative energy material for science subjects. This is because the E-Module can be easily used in supporting and basic learning media, it can be seen from the ease of use, the benefits of learning media,(Sari, 2020).

Ease of use of the E-Module is a coherent presentation of information, concepts explained in the E-Module using illustrations or pictures, as well as an attractive writing style making it easier for students to study the E-Module independently(Irhasyuarna, 2022). In terms of the appearance of learning media, Afrida, et al stated that the attractive appearance and content of the E-Module can increase students' interest in learning(Husniati, 2016).

This is in line with Nur Kumala's research(2023), entering a new world of work in the 21st century needs to be equipped with some preparation, skills that need to be equipped in 21st century learning, and applying the use of technology in learning

Besides that, it is also in line with research by Yaneta et al.,(2021)who developed the Pandawa E-module assisted by the ispring application for fourth grade elementary school

students were declared practical, it can be concluded that this Pandawa e-module is very feasible to use in learning.

Conclusion

In this development research, the product developed was the PjBL-Based Ispring E-Module on Alternative Energy Materials in Science Subjects for Grade VI Students. The research method used is the ADDIE research method which includes Analysis, Design, Development, Implementation and Evaluation.

The IPA E-Module product was validated by three validator experts, consisting of media expert validation which obtained a percentage of 97.5%. with the "Very Eligible" category, the acquisition of material experts was 92.5% in the "Very Eligible" category, and linguists were 95.8%. with the category "Very Eligible".

Analysis of the results of the practicality of digital science media including the results through a response questionnaire conducted by the teacher obtained an average percentage of 94.5% in the "Very Practical" category. Assessment of the results of student responses in field trials is limited to small groups getting a percentage of 95.1%, in large groups getting a percentage of 92.8%. Based on the explanation of the research results above, the e-module is categorized as "Very Practical". From the results of the practicality test, the PjBL based ispring E-module is practical because it is easy for students to use and interesting in learning, helping students understand the material.

References

- Alfiandra, & Mulyadi, M. (2016). Development of Learning Products through Learning Through Ispring Media in Pancasila and Citizenship Education Subjects (PPKn) at SMK Negeri 2 Palembang. *Journal of Unity in Diversity*, 3(2), 2. <https://doi.org/10.36706/jbti.v3i1.4564>
- Asih Graduation & Eka Sulistyawati. (2014). *Science Learning Methodology*. Jakarta: Earth Script.
- Asmiyunda, A., Guspatni, G., & Azra, F. (2018). Development of E-Module Chemical Equilibrium Based on a Scientific Approach for Class XI SMA/MA. *EKSAKTA JOURNAL OF PENDIDIKAN (JEP)*, 2(2), 155. <https://doi.org/10.24036/jep/vol2-iss2/202>
- Cahyawati, EN, & Yasa, AD (2021). Development of Android-Based Interactive Media in the I-Spring Application for Elementary School Students. In *Proceedings of the UNIKAMA PGSD National Seminar*, 5(1), 536–545. <https://conference.unikama.ac.id/artikel/>
- Darmawan, D. (2015). *Communication Education Perspective Bio-communication*. Bandung: Rosdakarya Youth.
- EE Kurniawati, SS Sumarti, N. Wijayati, and MN (2017). Effect of Project Based Learning. *10(2252)*, 315–321.
- Firmansyah, A., & Jiwandono, NR (2022). *Tendency of Teachers in Applying Student Center*

Learning and Teacher Center Learning Approaches in Learning Tendency of Teachers in Applying Student Center Learning and Teacher Center Learning Approaches in Learning. 2(1). <https://doi.org/10.51817/jgi.v2i1.229>

Gafur, A. (2012). *Learning Design*. Yogyakarta: Wave Two.

Greenstein, L. (2012). *Assessing 21st Century Skills: a guide to evaluating mastery and authentic learning*. London: Sage Publications Ltd.

Hala, Y., SS, & KS (2015). Development of Biology Learning Devices Based on a Scientific Approach to Ecosystem Concepts for Junior High School Students. *Journal of EST, (Online)*, 1(3).

Himmah, F., & Martini. (2017). Development of Interactive Multimedia Using Ispring Suite 8 on Additives Sub-Material to Improve Student Learning Outcomes in Class VIII. *Pensa: Journal of Science Education*, 5(02), 73–82.

Husniati, A. (2016). Development of a Problem Based Learning (PBL) Based Module Accompanied by a Tree Diagram on Photosynthesis Material for Class VIII of SMP Negeri 1 Sawo. 5(2).

Irhasyuarna, RM and Y. (2022). Development of Science Literacy-Based Science Module on the Material of the Human Digestive System. *Journal of Heroes*, 18(1), 45–53.

Jauhariyyah., F., R. Suwon., HI (2017). Science, Technology, Engineering And Mathematics Project Based Learning (STEM-Pjbl) in Science Learning. *Pros. Seminar UM Postgraduate Science*, 2(4), 432–436.

Mimin Ninawati, Burhendi, FCA, & Wulandari, W. (2021). iSpring Suite Software Based E-Module Development 9. *Journal of Educatio FKIP UNMA*, 7(1), 47–54. <https://doi.org/10.31949/educatio.v7i1.830>

Mustami, MK & Dirawan, GD (2015). Development of Worksheet Students Oriented Scientific Approach at Subject of Biology. *Man In India (Online)*, 94(4). <http://journals.com/serialjournalmanager/pdf/1456920315.pdf>, Accessed 10 September 2019

Nur Kumala, F., Dwi Yasa, A., & Agus Setiawan, D. (2023). Optimization of Learning Technology and Implementation of the Independent Curriculum for Elementary School Teachers. In *Journal of Community Service*, 3.

Nuraini, I., Sutama, S., & Narimo, S. (2020). Development of Power Point Based Learning Media Ispring Suite 8 in Elementary Schools. *Journal of VARIDIKA*, 31(2), 62–71. <https://doi.org/10.23917/varidika.v31i2.10220>

Nurhalimah, SR, Suhartono, S., & Cahyana, U. (2017). Development of Android-Based Mobile Learning Learning Media on Material Colligative Properties of Solutions. *JRPK: Research Journal of Chemistry Education*, 7(2), 160–167. <https://doi.org/10.21009/JRPK.072.10>

Paruli, DK, Sesanti, R., & Dwi Yasa, A. (2021). The Effect of Project Based Learning (PjBL) Model

Assisted by 1&2Math Application Media on Learning Outcomes of Class II Students of SD Negeri 5 Tambakasri Malang. PGRI Kanjuruhan University Malang. <https://conference.unikama.ac.id/artikel/>

- Perdana, FA, Sarwanto, S., Sukarmin, S., & Sujadi, I. (2017). Development of e-module combining science process skills and dynamics motion material to increase critical thinking skills and improve student learning motivation senior high school. In *International Journal of Science and Applied Science: Conference Series*, 1(1), 45–54.
- Pritakinanthi, US (2017). Development of Learning Media Using iSpring to Improve Learning Outcomes in Class VIII English Subjects at SMP Negeri 37 Semarang. Semarang State University.
- Puspasari, R. (2019). Development of a Compilation Textbook of Graph Theory with Addie's Model. *Journal of Medives : Journal of Mathematics Education IKIP Veteran Semarang*, 3(1), 137. <https://doi.org/10.31331/medivesveteran.v3i1.702>
- Putri, LT, Nuroso, H., & Khoiri, N. (2018). THE EFFECTIVENESS OF PROJECT BASED LEARNING MODELS ON THE ACTIVENESS AND CREATIVE THINKING ABILITY OF STUDENTS IN CLASS X SMA N 2 SEMARANG. *Journal of Physics Learning Research*, 6(2). <https://doi.org/10.26877/jp2f.v6i2.2590>
- Rahmawati, AS, & Dewi, RP (2020). View metadata, citations and similar papers at core.ac.uk. THE EFFECT OF USING YELLOW PUMPH PASTA (*Cucurbita Moschata*) TO SUBSTITUTE WHEAT FLOUR WITH THE ADDITION OF ANGKAK FLOUR IN THE PRODUCTION OF DRY Noodles, 3, 274–282.
- Rukoyatun. (2018). Learning Resources Basic Graphic Design Class X SMK Negeri 9 Surakarta. *Journal of Muhammadiyah University of Jakarta*, 1, 1–12.
- Rusman, D. (2012). *Information and Communication Technology Based Learning*. Jakarta: PT RajaGrafindo Persada.
- Sahida, D. (2018). Development of Student Worksheets Based on Problem Based Learning Assisted by Comics to Improve Students' Creative Thinking Skills in Straight Motion Material. *Journal of Educational Sciences (Jep)*, 2(1), 9. <https://doi.org/10.24036/Jep/Vol2-Iss1/145>
- Sani. (2014). *Scientific and contextual approaches in 21st century learning*. Jakarta: Ghalia Indonesia, 70–86.
- Sari, N. and LA (2020). Physics E-Module Based on Contextual Teaching and Learning Using the Kvisoft Flipbook Maker Application to Improve Scientific Literacy of Class XI SMA/MA Students. *Natural Science*, 6(1), 29–40. <https://doi.org/10.15548/nsc.v6i1.1554.%0D>
- Sayekti, IC (2019). Analysis of the Nature of Science in Class IV Student Books, Sub Theme I, Theme 3, 2013 Curriculum. *Basic Education Profession*, 1(2), 129–144. <https://doi.org/10.23917/ppd.v1i2.9256>
- Sholeh, M. (2018). *Developing Information Technology-Based Teaching Materials: Making*

teaching materials with Ispring, Making questions with Quiz Creator and Hot Potatoes. Yogyakarta: Akprind Press.

Sudjana, N., & Rivai, A. (2014). Teaching Media. Bandung: Algensindo's New Light.

Tety Yunara Megadani. (2018). Development of Biology Modules on Metacognition-Based Growth and Development Materials. 303.

Widayat, W. (2018). Implementation of 21st Century Skills Development Through the Virtual Classroom Feature of the Learning House Portal. [http://pena.belajar.kemdikbud.go.id/2018/09/Implementation of Development of Kekapalanabad21-Melalui-Fitur-Kelas-Maya-Portal-Rumah-Belajar/](http://pena.belajar.kemdikbud.go.id/2018/09/Implementation%20of%20Development%20of%20Kekapalanabad21-Melalui-Fitur-Kelas-Maya-Portal-Rumah-Belajar/)

Widyawati, C., Katminingsih, Y., & Widodo, S. (2022). Development of Mathematical Interactive Learning Media Using Ispring Suite on Social Arithmetic Material. UMT Mathematics Education National Seminar, 76, 128–134.

Yaneta, L., Sari, I., Hakim, AR, & Gutama, A. (2021). Development of the Pandawa E-Module (Clever Javanese Script) Assisted by the Ispring Application in Javanese Class IV Subjects at SDN 04 Tambakasri, PGRI Kanjuruhan University, Malang. Introduction In this modern era, Javanese is rarely of interest to students. 5(November), 405–416.

Yaumi, M. (2017). View metadata, citations and similar papers at core.ac.uk. 1–21.