



DEVELOPMENT OF ANIMATION MEDIA IN LEARNING APPROACHES *STUDENT CENTERED LEARNING (SCL)* IN THE MATERIAL OF THE HUMAN RESPIRATORY SYSTEM, GRADE VIII SMPN 7 MOJOKERTO

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Abstract

The development of animation media in the SCL (Student Centered Learning) learning model has the desire to find the average activity in students, can encourage learning motivation in students, and create an effective learning. Meanwhile, to determine the validity of the product, validation is needed from several sources, namely: validation of material experts and media experts, based on the results of data analysis carried out there are results of the percentage of material experts of 87.5% and media experts of 97.5%, with it stated that learning animation media said to be valid. This research method uses Sadiman's development model. Product validation is carried out through formative evaluation, which consists of one to one evaluation, small group evaluation and field evaluation. The results of the three evaluations produce products that are suitable for use in the learning process. By using animation media as a learning tool through small group divisions, students are seen to be more active in discussing by giving several tasks such as summarizing the material and also giving questions. So it can be concluded that the animation media in the SCL learning model for the human respiratory system material in junior high school can be applied as a learning media by teacher.

Keywords: Animation Media; SCL Learning Model; Human Respiratory System Material

1. Introduction

Education has developed rapidly, starting with reforms undertaken to improve the quantity and quality of education (Nulhaqim et al., 2016). To improve the quality of education, breakthroughs are needed, both in curriculum development and learning innovations to support learning. Because for humans, education functions as a facility that greatly facilitates, can direct, even develop, and also guide towards a better life, not only for ourselves but also for the community around us (Anwar, 2015) Education is also one of the processes in helping humans develop their qualities, so they can overcome and face any problems that will be faced in the future. Education is not only to transfer knowledge or information from teacher to student, but students also have an obligation to be able to master the concepts that have been given by the teacher. Students are required to be more creative and also more active in learning to seek information. The concept of education is not only reduced to exams that measure the transfer of knowledge (*kognitif*), but can also include (*skill*), (*psychomotor*) and also basic attitudes (*basic attitude*) or *affective*, such as by being more critical, creative, and more open to innovation and the latest discoveries ((Akhwan, 2014)). In this case, an educator's task is not only to transfer knowledge but also to act as an agent of enlightenment.

In order for the learning process to be more effective, media is needed that is appropriate to the needs of students, the subjects to be delivered, and also the facilities and infrastructure

that support it. Learning media can be referred to as a tool, method, or technique that can be used to channel information between teachers and students in the teaching and learning process in the classroom (Arsyad, 2011) By creating a good learning media, it will also help students to be able to improve the results of good learning. To be able to support good and relevant learning, interesting learning is needed to make it easier for students to understand the material to be delivered. The learning media in question is learning animation media, in using animation media in learning can attract students' attention, from the beginning of the lesson to the end. The use of animation media can increase efficiency and effectiveness in learning activities (Mayer & Moreno, 2002). A beginner in animation media will also always pay attention to changes in each image rather than paying attention to changes in the material (Lowe, 2003)The use of animation media is a combination of images, text, and audio, therefore it will create a richer learning space than just text alone (Mason, 2010)Animation can be used for several purposes, namely as a tool, demonstration, and to assist students (Berney & Bétrancourt, 2016)

Previous research has concluded that students will feel bored and less engaged with learning methods that only use lectures and supporting media such as books and PowerPoint presentations that only present concepts. However, there are now many facilities that can support learning, including:PC and also LCD projector(Fitriani et al., 2020)Learning that only uses books makes students quickly bored in learning, because learning using books cannot attract attention and motivation in students so that the level of achievement in students only reaches the Minimum Competency (KKM) (Putri et al., 2020). Therefore, there must be developments in learning methods, so that students do not feel bored and also attract motivation in students. With this animation media, students will become more active because there are moving images and the presence of material with a unique appearance, so that students will be interested in learning the material. Animation is a type of motion visuals that can also be used to convey material that is considered difficult and requires media to be able to convey material that is delivered conventionally.

In addition to learning media, there are learning models that are useful for supporting the learning process. One of the learning approaches that is widely known among the public isSCL (*Student Centered Learning*). In learning activities using the SCL learning approach, students are positioned as the center of learning. There are various strategies or methods available.*Student Centered Learning (SCL)*including:*Cooperative Learning, Case-Based Learning, Project Based Learning And Colaborative Learning*. Learning approachSCLfocuses on improving and empowering students to develop critical thinking. There are several advantages to this learning approach.SCL, namely: (1) students can feel that learning is their own because students are given a place to express themselves; (2) students have the motivation to participate in learning; (3) a democratic atmosphere grows so that students will dialogue or discuss with each other to learn from each other; (4) can be a new insight for teachers because something conveyed by students was not previously known by the teacher (Sudjana, 2001)In this approachSCLTeachers also have a crucial role in realizing this learning model. They must act as facilitators, motivators, and innovators. Teachers are not only tasked with teaching in front of the class, but also with problem-solving when students encounter difficulties during learning. In this approach,SCLthis uses a strategy or method*Small Gorup Disscusion*, namely using 5 small groups, each consisting of 6 students. Within the small groups, each student discusses the material presented.

The Human Respiratory System is a subject included in science lessons for grade VIII in junior high school. The application of this material requires observations from the sense of sight. Science lessons can create learning experiences for students (Hamdu & Agustina, 2011) Science learning is also useful for teaching students to be able to solve problems they encounter (Hidayatulloh et al., 2020)(Samatowa, 2010). According to (Hidayatulloh et al., 2020) science lessons are difficult to understand and less enjoyable. Therefore, the use of media is very influential in this learning process. Not just any media can support science lessons. Suitable media are media that can transform students' understanding from abstract to concrete understanding, such as the use of this animation media. According to (Efendi et al., 2020), animation media, when used for learning activities, will increase student motivation so that student learning outcomes improve.

According to a science teacher at SMP Negeri 7 in Mojokerto City, the current learning process uses only books, pictures, and statues, resulting in only partial understanding and a lack of motivation. This leads to students quickly becoming bored, and the material presented by the teacher is not well received. Furthermore, the method used is limited to lectures. The teacher also feels that this lack of motivation leads to a decline in student achievement. It's not just the media and methods that prevent students from grasping the material, but also the teacher's indefinite delivery, as the teacher feels limited time, preventing them from fully explaining the material.

Based on the problems encountered at this time, researchers developed animated media in the learning approach. *SCL* on the human respiratory system for eighth-grade students at SMP Negeri 7, Mojokerto City. This aims to increase student motivation and achievement.

2. Method

This research is a category of research and development which is usually called *research and development*. The aim of this research is to produce animation media that is suitable and effective for use in the learning process, so that it is felt to improve the learning process for students. The development model used is the development model from ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"fUL9K7Ge","properties":{"formattedCitation":"(Arikunto, 2013)","plainCitation":"(Arikunto, 2013)","noteIndex":0},"citationItems":[{"id":6,"uris":["http://zotero.org/users/local/qNCByYHc/items/X6E5J4UD"],"itemData":{"id":6,"type":"article-journal","container-title":"Jakarta: Rineka","source":"Google Scholar","title":"Research Procedures: a practical approach (15th printing)","title-short":"Research Procedures","author":{"family":"Arikunto","given":"Suharsimi"},"issued":{"date-parts":["2013"]}}}], "schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"} (Arikunto, 2013)(A. Sadiman, 2010):

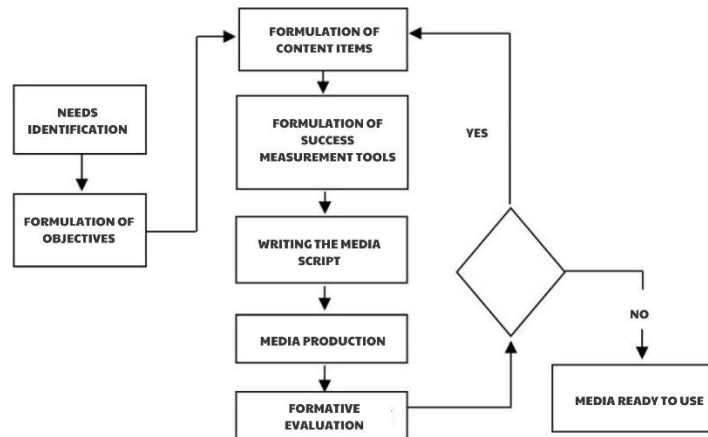


Figure 1. Development Model (A. Sadiman, 2010)

The following is a description of the learning model (A. S. Sadiman, 2014). The following are the stages, namely: (1) identification of needs, useful for supporting better learning; (2) formulation of objectives, in the form of competency standards and basic competencies as a reference for implementing learning; (3) based on the above objectives, material points can be formulated, which can be taken from books, the internet or designed by the teacher himself; (4) based on the above objectives, success measurement tools can be formulated, determining success measurement tools can be in the form of *test* to be able to measure the learning achievement; (5) writing a script, as a guideline in product development, this script writing is in the form of *storyboard*. On *storyboard* There are two tables, where on the left is the image visualization and on the right is the audio narrative that will be delivered. (6) media production, media production goes through two stages, the first stage is visualization production and the second is audio production; (7) formative evaluation, formative evaluation is divided into three, namely one-on-one evaluation (*one to one*), small group evaluation (*small group evaluation*), and field evaluation (*field evaluation*); (8) revision, the revision stage will be implemented if the evaluation results reach a percentage of less valid/suitable (26%-50%) and not valid/suitable (0%-25%) (Arikunto, 2013).

The subjects of this study were as a Material Expert, a Science Teacher for Class VIII at SMP Negeri 7 Mojokerto City, as a Media Expert, a Lecturer in Educational Technology at Malang State University, and as a student, a Class VIII A student at SMP Negeri 7 Mojokerto City. Animation media in the SCL learning approach for the human respiratory system material for class VIII in SMP can be used if it meets the criteria of being feasible/valid (75%-100%) and being quite feasible/valid (51%-75%) (Arikunto, 2013).

3. Results and Discussion

3.1 Result

In this development, a product has been produced in the form of animated media for learning the Human Respiratory System in Middle School.

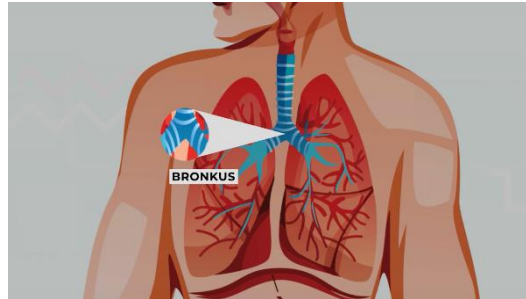


Figure 2. Display of Animated Media for Learning about the Human Respiratory System

Product Assessment and Testing Results

In this research and development, validation was conducted to determine the feasibility of the developed animation media. This validation stage was conducted by material experts and media experts. A field evaluation was then conducted. (*field evaluation*) on 30 students of class VIII A of SMP Negeri 7 Mojokerto City to determine the level of success of the objectives of developing the animated media product.

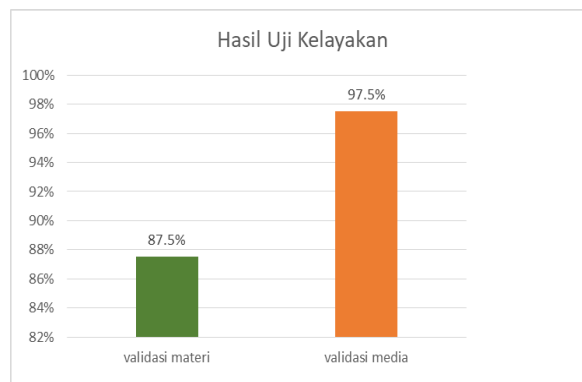


Figure 3. Expert Validation Assessment Results

From Figure 3. This is the result of validation by material experts and validation by media experts in the form of a percentage.

Material Expert Validation Results

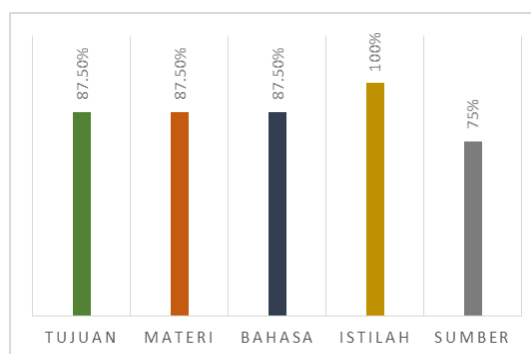


Figure 4. Results of Material Expert Validation

Table 1 shows the results of the validation by material experts on 5 aspects consisting of 20 questionnaire items. From the validation results, a percentage of **87.5%** and a total score of 71 out of a maximum of 80, which means the media is valid for use.

Table 1. Results of Material Expert Validation

No.	Aspect	Score	Percentage	Information
1.	Objective	7	87.5%	-
2.	Material	49	87.5%	-
3.	Language	7	87.5%	-
4.	Term	4	100%	-
5.	Source	3	75%	-
Results		70	87.5%	Valid

Media Expert Validation Results

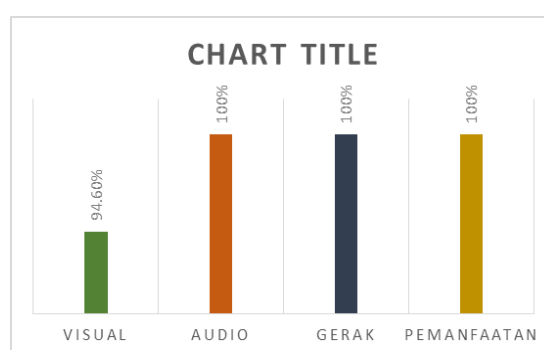


Figure 5. Media Expert Validation Results

On TTable 2 shows the results of media expert validation of 4 aspects consisting of 30 questionnaire items. From the validation results, a percentage of **97.5%** with a total score of 117 out of a maximum of 120. which means the media is valid for use.

Table 2. Media Expert Validation Results

No.	Aspect	Score	Percentage	Information
1.	Visual	53	94.6%	-
2.	Audio	20	100%	-
3.	Movement	8	100%	-
4.	Utilization	36	100%	-
Results		117	97.5%	Valid

One-on-One Evaluation Results (One to One)

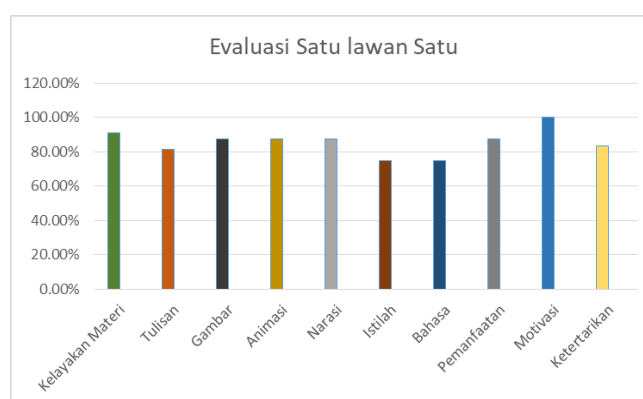


Figure 6. One-on-One Evaluation Results

Table 3 shows the results of the one-on-one evaluation (*one to one*) using a learning approach *SCL* by 2 students of class VIII A at SMP Negeri 7 Mojokerto City, there are 10 aspects consisting of 20 questionnaire items. From the evaluation, the percentage results obtained were **85.6%** which means animated media in the learning approach *SCL* eligible for use.

Table 3. Results of One-on-One Evaluation (One to One)

No.	Aspect	Percentage	Information
1.	Material Eligibility	90.8%	-
2.	Writing	81.2%	-
3.	Picture	87.5%	-
4.	Animation	87.5%	-
5.	Narration	87.5%	-
6.	Term	75%	-
7.	Language	75%	-
8.	Utilization	87.5%	-
9.	Motivation	100%	-
10.	Interest	83.3%	-
Rat rat		85.6%	Suitable for use in learning

Small Group Evaluation (Small Group Evaluation)

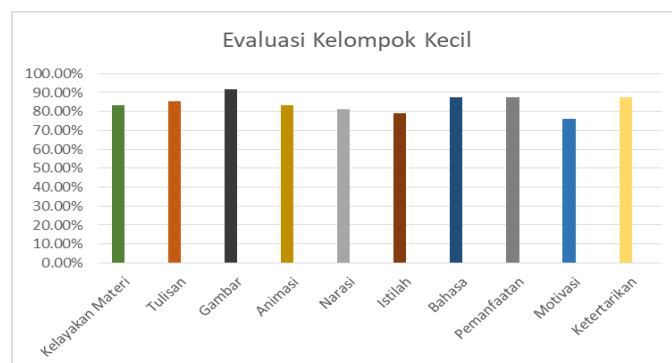


Figure 7. Small group evaluation

Table 4 shows the results of the small group evaluation (*small group evaluation*) using a learning approach *SCL* by 6 students of class VIII A at SMP Negeri 7 Mojokerto City, there are 10 aspects consisting of 20 questionnaire items. From the evaluation, the percentage results obtained were **85%** which means animated media in the learning approach *SCL* eligible for use.

Table 4. Small Group Evaluation Results (*Small Group Evaluation*)

No.	Aspect	Percentage	Information
1.	Material Eligibility	83.3%	-
2.	Writing	85.4%	-
3.	Picture	91.6%	-
4.	Animation	83.3%	-
5.	Narration	81.2%	-
6.	Term	79.1%	-
7.	Language	87.5%	-
8.	Utilization	87.5%	-
9.	Motivation	75.9%	-
10.	Interest	87.5%	-
Rat rat		85%	Suitable for use in learning

Field Evaluation Results (*Field Evaluation*)

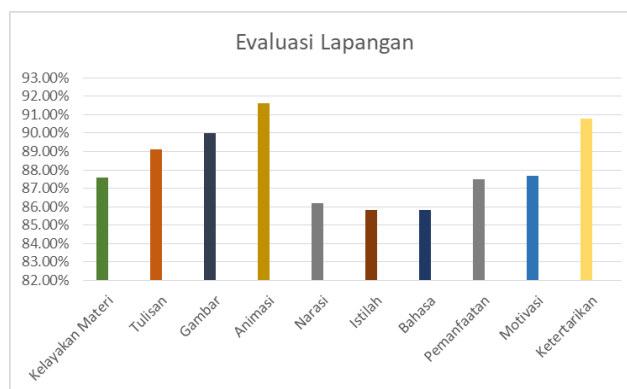


Figure 8. Field Evaluation Results

Table 5 shows the results of the field evaluation. (*field evaluation*) using a learning approach *SCL* by 30 students of class VIII A at SMP Negeri 7, Mojokerto City, on 10 aspects consisting of 20 questionnaire items. From this evaluation, the percentage results obtained were **88.1%** which means animated media in the learning approach *SCL* eligible for use.

Table 5. Field Evaluation Results (*Field Evaluation*)

No.	Aspect	Percentage	Information
1.	Material Eligibility	87.6%	-
2.	Writing	89.1%	-
3.	Picture	90%	-
4.	Animation	91.6%	-
5.	Narration	86.2%	-
6.	Term	85.8%	-
7.	Language	85.8%	-
8.	Utilization	87.5%	-
9.	Motivation	87.7%	-

10. Interest	90.8%	-
Rat rat	88.1%	Suitable for use in learning

Table 4. Student Activity Results

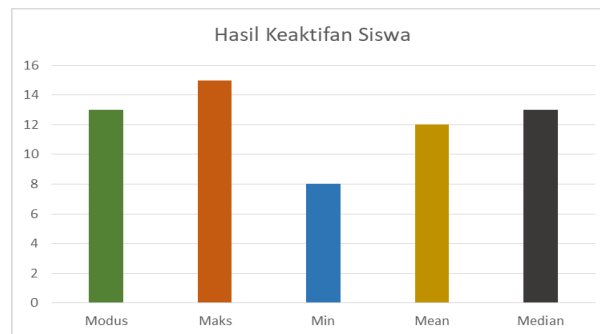


Figure 7. Student Activity Results

Table 4 shows the average value of student activity results. There are 3 assessments in it, namely: (1) active discussion; (2) summary content; and (3) active question and answer. These results are in the form of an assessment from 5 to 1, with calculations for each group.

Based on research results and the development, the student learning outcomes obtained are the average value of student activity consisting of 6 groups and each group consists of 5 students with a total number of students of 30 students at SMP Negeri 7, Mojokerto City. The average value of student activity is **87.3%**, which is calculated from several aspects, namely the summary, discussion, question and answer and instrument aspects. Then, to assess the effectiveness of students, it can be assessed from the aspect of giving questions, with the number of KKM above 75. With the number of students who got a score above 75, there were 2 people, a score of 75 there were 2 people and a score below 75 there were 7 students.

3.2 Discussion

Based on the research and development that has been carried out, it can be said that this research and development can run smoothly. The application of animated media in learning models *SCL* The human respiratory system material was successfully implemented without any obstacles in the field. Based on the research and development conducted, validation results were obtained from material experts, media experts, and field evaluations. (*field evaluation*). The results of the validation by material experts can be stated that from 5 aspects with 20 instrument items, a percentage of **87.5%**, which means that the material is in the valid category for use in learning activities. The validation results from media experts can be stated that from 4 aspects of 30 instrument items, the percentage results obtained are **97.5%** This means that this animated media is valid for use in learning activities. Furthermore, there are the results of the field evaluation. (*field evaluation*) stated that from 11 aspects of 20 instrument items, the

percentage results obtained were **88.1%**. This means that this animated media is suitable for use in the learning process. Meanwhile, student activity is assessed from the way students discuss in small groups. Student activity can be assessed from discussions, solving problems, formulating summaries and being able to understand the content of the material in the media. The average value of student activity in class VIII A of SMP Negeri 7 Mojokerto City is obtained as a percentage **87.3%**.

Learning media can convey information or messages from teachers to their students (Sukiyasa & Sukoco, 2013). However, according to (Luppy et al., 2019) learning media can serve as a link between students and teachers in learning activities. Therefore, it can be concluded that learning media is a tool or link between teachers and students that functions to connect information, messages, and materials in the learning process. Learning media plays a crucial role in the success of learning because it facilitates teachers in conveying material to students. This not only makes things easier for teachers but also makes it easier for students to understand what the teacher is conveying.

Animation media is a combination of moving images, audio, and text presented in an attractive format. According to (Mayer & Moreno, 2002) animation is a depiction of an object that can move or shift. Animation is a collection of images designed to produce movement (Sevtiana et al., 2020). Animation media is considered more practical and efficient than traditional media (Aksoy, 2012). According to (Handayani et al., 2020), the use of animation media will make things easier for students and also create imagination, thus leaving a lasting impression in their memory. The use of animation media can shorten learning time by up to 15% (Balazinski & Przybylo, 2005). Meanwhile, according to (Putra & Sujana, 2020) animation media can also be used to optimize learning activities so that student learning outcomes can be improved. The use of animation media can carry out cognitive processes optimally compared to not using media (Ariani & Haryanto, 2010). Therefore, media can stimulate students' minds, attract their attention, and assist learning activities to achieve success (Halliday, 2000). According to (Amali et al., 2020), students tend to be interested in using animated learning media because they are perceived to optimize their understanding of the material presented by the teacher. Animated media can provide clarity of material, motivation, understanding related to concepts, and students will feel happy when learning begins (Anggraeni & Kustijono, 2013).

Not only does the learning media influence the learning process, but the learning model can also play a significant role in supporting it. When selecting a learning model, careful considerations must be taken into account, including the objectives to be achieved, the students' perspectives, and the learning materials to be used. According to (Mulyatiningsih, 2016) Joyce et al. (2003), a learning model is a design that will be used in the classroom. A learning model can be used as one of the system components, but its implementation must also consider several other system components (Mulyatiningsih, 2016).

In the learning model *SCL* Students are encouraged to develop their own motivation to achieve their desired competencies or goals. This is done by giving students ample time for discussion, enabling them to express their opinions boldly. Therefore, the existence of a learning model *SCL* This makes students more active, innovative, have critical thinking skills and can solve problems (Ardian & Munadi, 2015). *SCL* will have an impact when students get the opportunity and facilities to build their own knowledge and will build a deep understanding and then improve the quality of the students (Hesson & Shad, 2007). In problem-based

learning. *SCL* Students are required to be more active in learning. In this learning, the teacher's role is not only to deliver material in front of the class, but also to help students solve problems when they experience difficulties during the learning process (RI, 2003). According to (Murza, 2017), by implementing the learning model *SCL* This can increase student engagement and improve learning outcomes. According to (*Psikologi Pendidikan Edisi 2 PDF | PDF | Seni | Komputer*, n.d.). students will gain more knowledge due to their active participation. Motivation arises from the students' own desire to develop further. *SCL* provide opportunities for students to be able to do *involved* the planning, implementation and assessment processes carried out by teachers (Naibaho, 2016).

The selection of the Human Respiratory System material for Grade VIII in Junior High School is considered suitable for this development model. Because this material requires a deeper understanding by providing detailed visualizations to make it easier for students to understand the subject matter. The human respiratory system is material in science lessons. Science lessons are lessons that are difficult to understand only using writing and must be understood clearly and concretely. The human respiratory system is a part of the human body that functions as a place of exchange or can also be called a place for air passage. According to (Mair & Supriadi, 2017), the respiratory system or can also be called the human respiratory system is an organ that has the function of breathing.

4. Conclusion

Based on the research that has been carried out, it was concluded that animation media using learning models *Student Centered Learning (SCL)* The research on the human respiratory system in eighth-grade junior high school is considered suitable for use in the learning process. This research is also considered to foster creativity, activeness, innovation, and critical thinking in students. Furthermore, this research can serve as a guide for teachers in classroom learning. This learning can increase student interest in the material presented due to the availability of supporting media.

References

- Akhwan, M. (2014). Pendidikan karakter: Konsep dan implementasinya dalam pembelajaran di Sekolah/Madrasah. *El-Tarbawi*, 8(1), 61–67.
- Aksoy, G. (2012). The effects of animation technique on the 7th grade science and technology course. *Creative Education*, 3(3), 304–308.
- Anggraeni, R. D., & Kustijono, R. (2013). Pengembangan media animasi fisika pada materi cahaya dengan aplikasi flash berbasis android. *Jurnal Penelitian Fisika Dan Aplikasinya (JPFA)*, 3(1), 11–18.
- Anwar, M. (2015). *Filsafat pendidikan*. Kencana.
[https://books.google.com/books?hl=id&lr=&id=ffpDDwAAQBAJ&oi=fnd&pg=PA1&dq=Anwar,+M.+\(2015\).+Filsafat+pendidikan.+Kencana.&ots=lHdstEe-aY&sig=bFA2KLt71YjoQdctlogzPWGfYHO](https://books.google.com/books?hl=id&lr=&id=ffpDDwAAQBAJ&oi=fnd&pg=PA1&dq=Anwar,+M.+(2015).+Filsafat+pendidikan.+Kencana.&ots=lHdstEe-aY&sig=bFA2KLt71YjoQdctlogzPWGfYHO)

- Ardian, A., & Munadi, S. (2015). Pengaruh strategi pembelajaran student-centered learning dan kemampuan spasial terhadap kreativitas mahasiswa. *Jurnal Pendidikan Teknologi Dan Kejuruan UNY*, 22(4), 454–466.
- Ariani, N., & Haryanto, D. (2010). Multimedia Learning in Schools. *Jakarta: PT. Prestasi Pustakaraya Jakarta*.
- Arsyad, A. (2011). *Media pembelajaran*. Jakarta: PT Raja grafindo persada.
<https://www.academia.edu/download/30484693/jiptiain--umarhadini-8584-5-baii.pdf>
- Balazinski, M., & Przybylo, A. (2005). Teaching manufacturing processes using computer animation. *Journal of Manufacturing Systems*, 24(3), 237–243.
- Berney, S., & Bétrancourt, M. (2016). Does animation enhance learning? A meta-analysis. *Computers & Education*, 101, 150–167.
- Efendi, Y. A., Adi, E. P., & Sulthoni, S. (2020). Pengembangan media video animasi motion graphics pada mata pelajaran IPA Di SDN Pandanrejo 1 Kabupaten Malang. *Jurnal Inovasi Dan Teknologi Pembelajaran*, 6(2), 97–102.
- Fitriani, A. A., Ulfa, S., & Adi, E. P. (2020). Pengembangan Video Pembelajaran Animasi Sistem Pernapasan Manusia Sebagai Upaya Mendukung Kebijakan Belajar Di Rumah. *JKTP Jurnal Kajian Teknologi Pendidikan*, 3(3), 303–316.
- Hamdu, G., & Agustina, L. (2011). Pengaruh motivasi belajar siswa terhadap prestasi belajar IPA di sekolah dasar. *Jurnal Penelitian Pendidikan*, 12(1), 90–96.
- Handayani, S., Haryono, H., & Ahmadi, F. (2020). The effectiveness of animation film media to know ability mathematical concept of early childhood based on gender. *Journal of Primary Education*, 9(2), 161–167.
- Hesson, M., & Shad, K. F. (2007). A student-centered learning model. *American Journal of Applied Sciences*, 4(9), 628–636.
- Hidayatulloh, S., Praherdhiono, H., & Wedi, A. (2020). Pengaruh game pembelajaran terhadap peningkatan hasil belajar pemahaman ilmu pengetahuan alam. *JKTP: Jurnal Kajian Teknologi Pendidikan*, 3(2), 199–206.
- Lowe, R. K. (2003). Animation and learning: Selective processing of information in dynamic graphics. *Learning and Instruction*, 13(2), 157–176.
- Luppy, F. M., Anwar, R. B., Linuhung, N., Agustina, R., & Rahmawati, D. (2019). The development of animation-based learning media using construct 2 on logic material. *Matematika Dan Pembelajaran*, 7(2), 13–21.
- Mair, Z. R., & Supriadi, T. (2017). Media pembelajaran sistem pernapasan pada manusia berbasis multimedia. *Jurnal TIPS: Jurnal Teknologi Informasi Dan Komputer Politeknik Sekayu*, 6(1), 20–30.

- Mason, A. (2010). Animation Evolution/Society for Animation Studies 22nd Annual Conference. *Conference/Roundtable Session Contributor: "Norman MacLaren Legacy"*.
<https://www.research.ed.ac.uk/en/publications/animation-evolutionsociety-for-animation-studies-22nd-annual-conf>
- Mayer, R. E., & Moreno, R. (2002). Animation as an Aid to Multimedia Learning. *Educational Psychology Review*, 14(1), 87–99. <https://doi.org/10.1023/A:1013184611077>
- Mulyatiningsih, E. (2016). Pengembangan model pembelajaran. *Diakses Dari Http://Staff. Uny. Ac. Id/Sites/Default/Files/Pengabdian/Dra-Endang-Mulyatiningsih-Mpd/7cpengembangan-Model-Pembelajaran. Pdf. Pada September*.
<https://www.academia.edu/download/32798229/7cpengembangan-model-pembelajaran.pdf>
- Naibaho, L. (2016). Phonological acquisition of a child suffering from language delay. *International Journal of Language Education and Culture Review*, 2(1), 33–42.
- Nulhaqim, S. A., Heryadi, D. H., Pancasilawan, R., & Ferdryansyah, M. (2016). Peranan perguruan tinggi dalam meningkatkan kualitas pendidikan di Indonesia untuk menghadapi Asean community 2015 studi kasus: Universitas Indonesia, Universitas Padjadjaran, Institut Teknologi Bandung. *Share: Social Work Journal*, 6(2), 197.
- Psikologi Pendidikan Edisi 2 PDF | PDF | Seni | Komputer*. (n.d.). Scribd. Retrieved July 31, 2025, from <https://id.scribd.com/document/477394620/Psikologi-Pendidikan-Edisi-2-1-pdf>
- Putra, I. G. D., & Sujana, I. W. (2020). Hasil belajar ips menggunakan kolaborasi model discovery learning berbasis media animasi. *Journal of Education Technology*, 4(2), 103–109.
- Putri, A. I. V., Kuswandi, D., & Susilaningsih, S. (2020). Pengembangan video edukasi kartun animasi materi siklus air untuk memfasilitasi siswa sekolah dasar. *Jurnal Kajian Teknologi Pendidikan*, 3(4), 377–387.
- Sevtiana, A., Saputra, G. T., & Wisata, D. (2020). Perancangan Video Animasi Edukatif Perubahan Energi Pada Siswa Kelas Tiga Sekolah Dasar. *Jurnal Digit: Digital of Information Technology*, 9(2), 178–189.
- Sudjana, D. (2001). *Metode dan teknik pembelajaran partisipatif*. Falah Production.
<https://books.google.co.id/books?id=YsAdAAAACAAJ>
- Sukiyasa, K., & Sukoco, S. (2013). Pengaruh media animasi terhadap hasil belajar dan motivasi belajar siswa materi sistem kelistrikan otomotif. *Jurnal Pendidikan Vokasi*, 3(1), 126–137.