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IMPLEMENTATION OF SCIENCE LEARNING BASED ON ANIMATED VIDEOS IN ELEMENTARY SCHOOL

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Abstract

This study aims to find out how the implementation of science learning based on animated videos in elementary schools. This research uses a qualitative approach with a descriptive method. This research was conducted at Al-Fatih Integrated Islamic Elementary School. The subjects in this study were science lesson teachers in class V. The instrument used to collect data was in the form of semi-structured interview instruments. Data collection techniques with interviews. This data analysis technique is carried out by collecting data, then continued with the selection of the data obtained, after that continued with the presentation of data, and drawing conclusions. The implementation of learning in class is divided into three stages of implementation, namely initial activities, core activities, and closing activities. In the implementation of learning, teachers play an important role in transferring knowledge to students. Teachers need media that can help them in transferring knowledge. Animated videos are a medium that can help teachers transfer knowledge to students. The implementation of animated video-based science learning provides benefits and has a positive impact on students and teachers. Animated videos motivate students, increase students' interest and understanding and help teachers in providing concrete examples and creating a fun learning atmosphere

Keywords: Animation Video, Science Learning, Elementary School

Abstrak

Penelitian ini bertujuan untuk mengetahui bagaimana implementasi pembelajaran IPA berbasis video animasi di sekolah dasar. Penelitian ini menggunakan pendekatan kualitatif dengan metode deskriptif. Penelitian ini dilakukan di SD Islam Terpadu Al-Fatih. Subjek dalam penelitian ini adalah guru pelajaran IPA kelas V. Instrumen yang digunakan untuk mengumpulkan data berupa instrumen wawancara semi terstruktur. Teknik pengumpulan data dengan wawancara. Teknik analisis data ini dilakukan dengan cara mengumpulkan data, kemudian dilanjutkan dengan pemilihan data yang diperoleh, setelah itu dilanjutkan dengan penyajian data, dan penarikan kesimpulan. Pelaksanaan pembelajaran di kelas dibagi menjadi tiga tahap pelaksanaan, yaitu kegiatan awal, kegiatan inti, dan

kegiatan penutup. Dalam pelaksanaan pembelajaran, guru memegang peranan penting dalam mentransfer ilmu pengetahuan kepada siswa. Guru membutuhkan media yang dapat membantu mereka dalam mentransfer ilmu pengetahuan. Video animasi merupakan salah satu media yang dapat membantu guru mentransfer ilmu pengetahuan kepada siswa. Penerapan pembelajaran IPA berbasis video animasi memberikan manfaat dan memberikan dampak positif bagi siswa dan guru. Video animasi memotivasi siswa, meningkatkan minat dan pemahaman siswa serta membantu guru dalam memberikan contoh nyata dan menciptakan suasana pembelajaran yang menyenangkan

Kata Kunci: Video Animasi, Pembelajaran IPA, Sekolah Dasar

INTRODUCTION

Animated video is a form of integration of information and communication technology in the implementation of learning in the classroom (Yaumi, 2011). Animated video is a tool or media in a learning implementation that can help teachers transfer knowledge to students and animated videos also help students understand knowledge, the use of animated videos provides a number of benefits in the process of implementing learning in the classroom, because animated videos are a combination of audio media and visual media. Animated videos present unique images, colours, interesting characters (Haryoko, 2012). Therefore, animated videos are very beneficial in the implementation of classroom learning. In fact, animated videos are rarely used in the implementation of learning because they are considered ordinary and less interesting. The use of animated videos during classroom learning is one of the implications of using technology. Where the world of education today, especially in the independent curriculum, the implementation of learning must not escape the use of technology-based media.

Education is one of the main indicators to build the quality of human resources. The quality of human resources is very dependent on the quality of education obtained today (Fadhli, 2017). Without education, humans may never develop and be cultured, therefore, education is very important for humans. One level of education that greatly impacts the quality of Human Resources is the elementary school education level (Sa'ud & Sumantri, 2007). In an education, of course, it does not escape from the implementing components of education itself, one of the components of education is teachers and students. Teachers have a great role and responsibility in creating a learning process and learning atmosphere that suits the needs and characteristics of students in order to achieve learning objectives (Krishan & Al-rsa'i, 2023).

Teachers in designing lesson implementation plans cannot be separated from the curriculum. The curriculum is no less important in the learning process, because the curriculum can be a reference or guideline for teachers in the implementation of learning. The curriculum is always undergoing changes in order to ensure that the education provided remains relevant to the guidance of the times and the curriculum must be able to follow the nature of nature and the nature of the times, and be able to pay attention to diversity and inclusivity in the teaching and learning process. However, Rohim & Rigianti (2023), said that the current curriculum reform poses certain obstacles and challenges to teachers today, where most teachers are still not ready and lack understanding in finding materials, especially for

teachers who are many years old. The curriculum applied at this time is the independent learning curriculum in which, the independent learning curriculum aims to further optimize students in their intracurricular learning, where students have sufficient time to explore concepts and strengthen competencies (Rahayu et al., 2022).

One of the characteristics of the independent curriculum is the implementation of learning that is inseparable from Information and Communication Technology (Dudhat, 2023). Where at this time teachers are required not to be literate in technology, because technology has flowed into various aspects of life, inseparable in the world of education. Technology in education can be a weapon for teachers to facilitate their work in achieving learning goals (Madani, 2019). Technology is a forum for teachers to facilitate students by creating interactive learnings (Azhariadi et al., 2019). The implementation of technology-based learning processes must also be facilitated with tools, processes and learning resources that support the implementation of learning technologically and in accordance with the characteristics of students (Gunawan, 2016).

The benefits of technology in a learning process are that it can improve the quality of learning and make it easier to access education and learning, make it easier for teachers to deliver material to students, and make it easier for teachers to develop and display more interesting material so that the material delivered is delivered well (Nabil, 2020). Lestari (2018), The use of technology in the implementation of learning has an important role in the development of media, learning tools, and as a learning resource. In addition to having an important role, the use of technology in the implementation of learning also has a positive impact in terms of more efficient use of time, costs, logistics, and in analyzing problems, finding ways to overcome problems, implementing assessors, and managing problem solving that covers all aspects of human learning (Mutanaffisah et al., 2021).

Information and Communication Technology (ICT)-based learning has become important in today's world of education. ICT provides new opportunities for teachers and learners to improve learning effectiveness, especially in science subjects in elementary schools (Kusumawati, 2022). Susanto (2013), said that science is a human effort in understanding the universe through observations, procedures, and explanations to obtain conclusions or results, IPAS is a science that is directly related to environmental phenomena that study living things and the social environment (Sobron & Bayu, 2019).

The implementation of science learning using technology can arouse students' interest and critical thinking attitudes to explore their learning environment (Aprilia et al., 2017). Technology in the implementation of science learning can help teachers explain materials that cannot be seen directly by students, such as material about the digestive system, circulatory system, photosynthesis process, and many others (Hulqi & Arifin, 2022). Science learning should be carried out well in the learning process at school, considering the importance of the lesson, because science learning is able to instill a scientific attitude in solving problems faced by students (Iskandar & Kusmayanti, 2018). This research highlights innovation in Sciences learning by integrating technology as a tool to facilitate the understanding of complex scientific concepts. The main focus of this innovation is to enhance students' ability to think critically, cultivate interest in learning, and enrich their scientific mindset (Lubis & Mavianti, 2022). By leveraging technology, IPAS learning becomes more dynamic and

interactive, enabling the delivery of materials that are difficult to comprehend through traditional methods to be more easily understood by students (Muhson, 2010). Overall, the novelty of this research lies in the implementation of learning that integrates technology with IPAS learning, effectively stimulating interest, strengthening critical thinking skills, and enriching scientific mindset among students.

Here are some literature reviews that highlight the positive role of implementing information and communication technology-based learning in science subjects in elementary schools. Research conducted by Muhklis (2023), The implementation of science learning using technology can arouse students' interest and critical thinking attitudes to explore their learning environment. Research by Ramdhani (2023), the implementation of learning using ICT in science learning can enrich the understanding of scientific concepts and motivate students to learn. In addition, the results of research conducted by Chaeruman (2005), show that ICT integration, such as the use of educational applications and online resources, can improve students' critical thinking skills in understanding natural phenomena. This finding is in line with research conducted by Oktavian & Aldya (2020), which highlights the effectiveness of online platforms in increasing student participation and providing access to additional information.

Based on the literature review above, it can be concluded that the use of technology in the implementation of learning provides a number of benefits for teachers and students, especially in science learning in elementary schools. The difference between the studies above and the research that the researcher will do is that the researcher will see how the implementation of animated video-based science learning in class V. Where animated video is an implication of the use of technology in the implementation of learning in the classroom

This study will describe the implementation of animated video-based science learning in elementary schools. This research can contribute to improving the quality of science learning at the elementary school level. By introducing animated videos in the implementation of classroom learning, this research can help create interactive, active, creative, and innovative learning experiences so as to increase students' understanding and interest in carrying out science learning.

METHODS

This research uses a qualitative research approach with a descriptive method. Qualitative research is research that intends to understand the phenomena of what is experienced by research subjects in a special natural context and using various natural methods (Rukin, 2019). This descriptive qualitative research is used to provide an overview of the implementation of information and communication technology-based learning in science subjects.

This research was conducted at Al-Fatih Integrated Islamic Elementary School located in Bireuen Regency, Aceh Province. The purpose of the research conducted at the school is that the researcher wants to describe how the implementation of information and communication technology-based learning in science subjects. The subject of research or data sources that helped this research was a science subject teacher, namely Mrs. R1 who was a teacher who taught class V, the teacher was a graduate of Madrasah Ibtidaiyah Teacher

Education and the teacher was located in Peusangan village. The position of data sources in the form of resource persons is very important as an individual who has information. The research was carried out in the odd semester of the 2023/2024 academic year.

The instrument used to collect data is in the form of an interview instrument containing questions used by researchers in the form of semi-structured types to obtain information openly and carried out directly with science student subject teachers on the implementation of technology-based learning.

The data collection technique is by direct interviews via mobile calls with the science subject teacher. Data analysis techniques in qualitative research are carried out by collecting data first then followed by selecting the data obtained after that followed by presenting data and drawing conclusions (Khotijah et al., 2021).

RESULTS AND DISCUSSION

Implementation of Science Learning Based on Animated Videos

The implementation of learning is a process that involves interaction activities and mutual communication between teachers and students in an educational environment to achieve learning objectives. Teachers and students are two elements that cannot be separated in the implementation of learning. In the implementation of learning in class, there are three stages, namely: initial activities, core activities, and closing activities. This was revealed by Mrs. R1 as the resource person as follows:

> *In the implementation of classroom learning there are three stages, namely initial or preliminary activities, core activities, and closing activities. In carrying out science learning in class, I usually use learning media in the form of animated video media. I used the video media in the initial activities and core activities. In the initial activity, I used it in the reception section to lure students into the learning process. And in the core activities of the media I use to help me in explaining learning material. Animated videos that are displayed to students are in accordance with the content of learning materials and the videos are adjusted to the level of understanding of students.* (Interview with Mrs. R1: 10/27/2023)

Based on the research conducted by the researcher, the researcher will describe the discussion of the data obtained. Before carrying out learning, teachers first design learning tools needed in the implementation of classroom learning, such as the formulation of indicators, learning objectives, models, approaches, methods, learning media, and learning evaluation. The implementation of learning consists of three stages, the following is a description of the implementation of Science learning based on Animation Videos in Al-Fatih Elementary School:

Initial Activities for Learning Implementation

In the initial activity of learning implementation, there are several activities in the implementation process, as for the activities: The teacher starts learning by greeting and asking for news, and preparing students. Then, the teacher invites students to repeat the memorization of short surahs and pray together (Religious), then check the attendance list of students and condition students to be ready to start learning. Then the teacher conducts

reception activities to students, the reception activities are carried out by showing an animated video that will provoke students to enter the core process of learning implementation. Then the teacher motivates students to raise the spirit of learning, and convey learning objectives. The application of animated videos in the initial activity was revealed by Mrs. R1 as the resource person as follows:

> *In the initial activity, in conducting reception activities, I used videos that could provoke students' understanding of the material that students will learn in the future.* (Interview with Mrs. R1: 10/27/2023)

In the initial activity, the implementation of science learning based on animated videos was carried out in the delivery of reception activities. Reception activity is an activity that combines and assimilates knowledge with the experience of students. The preconception activity plays a crucial role in the implementation process of learning as it serves to assess students' readiness to receive future learning. During this preconception activity, educators undertake the task of focusing students' attention on the upcoming learning content. Furthermore, the preconception activity serves to provide motivation to students to stimulate their learning enthusiasm and form positive perceptions about the subject matter to be explored. This positive activity not only creates a conducive learning atmosphere but also can stimulate students' intrinsic curiosity and engagement with the learning material. Thus, the careful implementation of preconception activities is a fundamental step towards achieving effective learning outcomes, fostering students' responses, motivation, and interest in the learning process.

Reception activities in IPAS learning are carried out using learning media based on information and communication technology, while the media used is animated video media. In the implementation of IPAS learning, reception activities can be carried out with various variations, such as one of them using animated videos. The diversity of delivery methods in reception activities will affect the interest and perception of students towards the material to be studied.

Core Activities of Learning Implementation

In the implementation of science learning in core activities, animated video media will play an important role in helping teachers to achieve learning goals that are in accordance with expectations. In the core activity, in the process of implementing science learning, the first stage carried out is the stage of orientation of students to problems. In this stage, the activity carried out by the teacher is to ask students to pay attention to the circulatory system pictures contained in the student book and the teacher explains the material, then the teacher plays an animated video about the circulatory system. The animated video that plays is not a film or visual type, but an audio-visual type.

The implementation of science learning based on animated videos will attract more students' attention in understanding the learning material. Then to further stimulate students' understanding to be more critical and think higher-order, the teacher gives some questions regarding the material to the learners. The following is a picture of the Implementation of Science Learning Based on Animated Video:

Figure 1. Implementation of Science Learning Based on Animated Videos

The picture above explains that the implementation of science learning in the school utilizes technology and information-based media. In its implementation, teachers use animated video media. In the picture, it can be seen that students access the animated video using a laptop. But for students who do not have laptops, the teacher will play the animated video through a projector in class.

Animated video is one form of integrating information and communication technology used in the classroom learning process. The utilization of animated videos in elementary school science education must be tailored to the characteristics of students and the nature of science learning to effectively fulfill its role. This is because animated videos represent an example of audio-visual media that can be employed in educational contexts. Science education goes beyond simply acquiring various knowledge about natural and social sciences; it also involves understanding facts, concepts, and scientific discoveries. Understanding the characteristics of Integrated Science and Social (IPAS) education will impact the implementation process of IPAS education in schools. In accordance with the IPAS approach, schooling is expected to serve as a means for students to learn about themselves, their social environment, and the physical environment, as well as to develop the ability to apply that knowledge in daily life. Therefore, the use of animated videos in the context of science education in elementary schools needs to consider student characteristics and IPAS learning principles to achieve optimal outcomes.

The implementation of science learning through animated videos is a step that can make the learning process enjoyable and enhance student motivation and learning outcomes. Animated videos, with their visualization in the form of moving images accompanied by sound, can stimulate the emergence of creative ideas from students. Through animated videos, learning materials can be easily conveyed to students because the video medium can visualize complex scientific concepts that are difficult to understand directly, such as the workings of the digestive system, photosynthesis, blood circulation, and many others. The use of animated videos also allows teachers to provide learning services more broadly to students, while students will also gain a broader understanding as learning resources. The selection of animated videos in science education is considered appropriate because the implementation of video-based learning will provide visualization effects to students on processes that are difficult to observe directly.

In the implementation of animated video-based science learning in the classroom to be more interesting and fun, it is necessary to develop and design interestingly. Therefore, there is a need for updates to the animated video. In the implementation of science learning at Al-fatih Integrated Islamic Elementary School, teachers design and develop their own animated videos according to what students need. This was revealed by Mrs. R1 as the resource person as follows:

> *The use of animated videos in the implementation of IPAS learning really helps me in delivering learning materials to students, especially learning materials that cannot be seen directly by students such as learning materials for the digestive system, circulatory system, excretory system, material about the occurrence of the photosynthesis process, and many others. I designed and developed the animated video myself according to the needs of students. In developing animated video media, sometimes I use the Assemblr Edu application, in this application animations are made into three-dimensional images.* (Interview with Mrs. R1: 10/27/2023)

Design and develop learning tools in the form of animated video media in the process of its application in the implementation of classroom learning will be in accordance with the characteristics, understanding, and needs of students. Designing and developing animated video media by teachers themselves will align with the needs and characteristics of students. Implementing learning using animated videos that are tailored to students' characteristics and needs has the potential to enhance students' understanding and ignite their enthusiasm for learning. This will positively contribute to the effective achievement of learning goals. By designing and developing animated videos specifically, teachers can accommodate students' needs and interests, creating a more engaging and relevant learning environment. Consequently, this can spark students' enthusiasm for participating in the learning process.

Then at the core stage of learning implementation, there are stages of organizing students to learn. At this stage the teacher divides students into several groups heterogeneously and the teacher asks students to sit in groups of 5 people in one group. Then, the teacher provides student worksheets and plays animated videos in the form of problems that students must solve in student worksheets. Then the investigation stage, at this stage the teacher will guide students to solve the problems obtained through the animated video. After finding and presenting the results of the problems obtained, the teacher asks students to present the results of the discussion in front of the class.

Concluding or Final Activities

In the implementation of animated video-based science learning in the closing activity, the first step that the teacher will take is to ask students to conclude the learning material carried out today. The teacher conducts evaluation activities by giving several quizzes to students. The quiz given is in the form of an animated video, in the video there are questions that must be answered by students. After that, the teacher conducts reflection activities related to happy and unhappy about the implementation of today's learning. Then the teacher gives a moral message to the students, asks the students to read the closing prayer of the lesson, and ends the learning by saying a greeting.

The Role of Animated Videos in Science Learning in Elementary Schools

In the process of implementing learning in the classroom, the media is present to assist teachers in delivering or transferring learning materials to students. This was revealed by Mrs. R1 as the resource person as follows:

> *In carrying out science learning in class, I use animated video media. Because this video media really helps me in providing concrete examples to students, I can show directly examples of material that cannot be brought and seen directly. Then I chose animated video media because animated video media is included in the type of audio visual. Where this type of media is already very interesting because there are sounds of moving and colourful images and this animated video media is very easy to develop.* (Interview with Mrs. R1: 10/27/2023)

The implementation of science lessons in elementary schools is realized through technology-based learning media. The media acts as a bridge for messages from message senders to message recipients (Nurfadhillah, 2021). Learning media acts as one of the tools that bridge the knowledge that students already have with new knowledge (Marlina et al., 2021). Well-packaged learning media can grab students' attention, motivate them to learn, and remind them of the knowledge and skills they've learned. Thus, the media becomes or functions as a tool or medium to obtain or clarify information when carrying out learning.

In the implementation of IPAS learning, learning media is an indispensable tool for science teachers to carry out learning and plays a role in helping students understand concepts in science learning. The effectiveness of using the media itself as a tool depends heavily on the ability of the teacher himself in teaching using media and the type of media used must be in accordance with the needs and characteristics of students, because learning media largely replaces the teacher's role as an informer or delivery of learning material. However, for material teaching to be successful, technology needs to play a role in science learning.

Animated videos in science learning act as a bridge that bridges students to learn about themselves, the social environment, the environment, and phenomena that occur in the environment. Animated videos act as a bridge connecting new knowledge to students. They also play a crucial role in assisting teachers in transferring knowledge to students and aiding students in comprehending learning materials. Animated video media, as a type of audio-visual media, also serves to optimize the learning model in its implementation.

Obstacles in its implementation

It is undeniable that in the process of implementing learning there are always obstacles. The obstacles in the implementation of animated video-based science learning are related to the facilities and infrastructure and the different levels of ability of students. This was expressed by Mrs. R1 as follows:

> *In the implementation of science learning, there are obstacles such as a substandard internet network, inadequate availability of projectors because this school is still at the construction stage, so the facilities and infrastructure are not too complete and there are some students who do not have laptops. In addition, the level of understanding of students is different so that in the implementation of science learning not only can use animated videos, but must use other media. In overcoming*

these obstacles, teachers and schools hold activities such as field study and science Explorer to help students. (Interview with Mrs. R1: 10/27/2023)

Factors that support the success of educational programs in the process of implementing learning are facilities and infrastructure. Facilities and infrastructure in education are very important for making educational programs successful. Things like projectors and internet access are sometimes limited, which can make learning harder. Schools need good facilities and infrastructure to show they are good quality, and these things need to get better over time as we learn more. So, we need to keep investing in and improving facilities to make sure students have what they need to learn well and make progress in their education.

Intellectual differences, especially in terms of intelligence, are crucial factors that affect students' learning success. Intelligence can vary from high to low, each influencing students' learning abilities differently. These individual differences are influenced by genetic and environmental factors where students grow and develop. In the context of classroom management, it is important for teachers to pay special attention to students' individual differences. This is because each student has different learning needs and characteristics. By recognizing these differences, teachers can develop more effective learning strategies and meet the needs of each student.

Furthermore, teachers often face challenges related to students' behaviour in the classroom. Some students may have difficulty maintaining concentration during learning sessions. This can disrupt the learning process and hinder the achievement of learning objectives. Therefore, it is important for teachers to not only focus on the academic aspects of learning but also consider the socio-emotional and behavioural aspects of students. By understanding and appropriately responding to the needs and challenges faced by each student, teachers can create an inclusive and supportive learning environment for all students to reach their maximum potential.

In overcoming these obstacles, there are several ways that can be done including, 1) Providing solutions to students, to overcome students, teachers and schools looking for or providing solutions so that students have the same understanding and motivation in the teaching and learning process, namely: so that students have the same assumption or thought about the lesson, the teacher uses learning media with real habits. Not only that, teachers also provide guidance or assistance to students in groups and individuals according to the abilities of students.

Then, 2) Holding Field Trip activities, teaching with an environmental approach is implied by activities outside the classroom which are very important in order to involve students to seek their learning experience. One way to carry out learning activities with an environmental approach is to use the field trip method. Field trips will provide a wider experience to students than just learning carried out in a classroom that is limited by four walls. All five senses of students will be functioned. Education needs to introduce environmental awareness to students. A study shows that human behaviours damaging the environment will have adverse impacts on humans themselves. In learning, this understanding helps students develop an attitude of care towards the environment. They realize that harming nature could endanger humans in the future. Thus, students can become

agents of change to preserve the environment for future generations. This underscores the importance of education in shaping environmental awareness among the younger generation to uphold environmental sustainability.

Then, 3) Holding Science Explorer activities, Science Explorer activities where these activities can aim to provide important information for students about experiments that cannot be done through applications, then these experiments are carried out about science in the surrounding environment.

CONCLUSION

In the process of implementing animated video-based science learning in the classroom involves the role of teachers and students. The implementation of learning in class is divided into three stages, namely initial activities, core activities, and closing activities. The implementation of animated video-based science learning provides so many benefits, including; Can increase interest, learning outcomes, can encourage the emergence of creative ideas of students, and make it easier for students to understand a material. This is because animated video is a type of audio-visual media, which combines sound with images, colours, and characters in it so that it can attract the attention of students. In the implementation of animated video-based science learning, there are often obstacles in it, starting with inadequate facilities and infrastructure and different levels of student understanding. However, teachers and education staff hold activities that can overcome these obstacles such as science Explorer activities and field trips.

Research has several strengths, including: 1) This research combines information and communication technology (ICT) approaches in science learning in elementary schools, especially through the use of animated videos. This approach demonstrates efforts to bring interactive, active, creative, and innovative learning to students. 2) This research is relevant to actual challenges in education, especially in integrating technology in the learning implementation process. This is important given the importance of preparing students with the necessary technological skills in the digital age. 3) This research provides solutions to challenges and obstacles for teachers and schools in implementing technology-based learning in the classroom.

This research also has several shortcomings or weaknesses, including: 1) The research was conducted in one school only, so the findings may not be widely applicable in various school contexts. 2) The study may not include a control group that allows comparisons between the use of animated video and other learning methods, making it difficult to determine the relative effectiveness of such approaches. The limitations of this study are the limited scope of research, which is only carried out in class V, and the lack of informants where this study only used one informant for data collection.

Drawing from the conducted research, some suggestions can be proposed, including the following: 1) It is suggested that further investigations be conducted regarding the execution of science learning in primary schools. 2) The researchers propose expanding this study to gain a broader perspective on the advantages of technology in facilitating the learning process. 3) Additional variables that may influence the acquisition of new insights

into the implementation of science education in elementary schools are anticipated by the researchers.

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