



Implementation of i-Spring Suite to improve students' learning for critical thinking skills in natural science

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ABSTRACT

Low critical thinking skills are a crucial problem in science learning. Meanwhile, the purpose of this research was to determine the effect of the i-Spring Suite 10 media on students' critical thinking skills in natural science. The research method used a quasi-experimental with a limited population, namely 6th-grade elementary students. The sample was selected using a purposive sampling technique. Thus, two classes were used as samples, namely 6th A grade with 20 students and 6th B grade with 20 students. The 6th A grade as an experimental class and used interactive multimedia based on i-Spring Suite 10. Meanwhile, 6th B grade was the control class and used audiovisual-based multimedia. The research instrument used a test with multiple choices and explanations. Based on the results of statistical analysis, the results of $t_{observed}$ were 2.89 and $t_{critical}$ with a significance level of 5% ($\alpha = 0.05$) of 2.025. From these results, it was found that $t_{observed} > t_{critical}$. This study concludes that there is a significant effect of the interactive multimedia based on i-Spring Suite 10 on students' critical thinking skills in natural science subjects.

Keywords: critical thinking skills, Darul Muta' alimin, i-Spring Suite 10, natural sciences

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INTRODUCTION

The 21st-century learning is one of the popular topics (Mohammed, 2023; Gatta et al., 2023; Pablo et al., 2022; Hassan & Abdulkareem, 2023). It is because it relates to the ability to think critically. This critical thinking is an essential skill in education (Ekamilasari & Pursitasari, 2021; Purwaningsih et al., 2023; Sombria et al., 2023; Misbah et al., 2022). This ability certainly needs to be developed intensively. Thus, students must get high-level intellectual skills. The urgency of this critical thinking ability was expressed by Saragih & Zuhri (2019). It is reported that students can think critically to solve problems effectively. They can identify the elements of the problem and seek logical alternatives for solutions. In fact, educational institutions are significant places to develop student's critical thinking skills through a variety of pedagogical activities and curricula. However, these institutions have not been able to fully accommodate students to develop their critical thinking skills. In the macro scope, the ability to think critically is still a problem in the Indonesian education system. This is evidenced by the results of the Program for International Student Assessment (PISA) which was held in 2018. Referring to the PISA results, Indonesia ranked 74th out of 79th, with an average score of 396. The questions tested were dominated by questions oriented toward higher-order thinking skills (HOTS). This reveals that the student's abilities to answer questions that refer to critical and analytical thinking skills are still low. Critical learning skills and 21st-century innovation are as follows.

The first critical learning skill is communication and collaboration. Learning is a fundamental social activity, whether it is at school, workplace, or another environment (Olowoyeye & Aladesusi, 2022; Purwianingsih et al., 2023; Rivky et al., 2022). There are several

aspects such as clear communication. Clear communication requires articulation and ideas that effectively use in spoken, written, and non-verbal communication skills in formal and contextual forms; effectively listen to the meaning elaborated including knowledge, values, attitudes, and intentions; using communication for various purposes example: for information, orders, motivating, and persuading; use different media and technologies and know how to decide on the priority of other impacts; and communicate effectively in different environments, including multi-languages.

The second skill is collaboration with others. This skill requires the students to demonstrate the ability to work effectively and respectfully with diverse teams, exercise flexibility and tact to help compromise toward achieving common goals and assume now responsibility for collaborative work and individual contributions by members of each team.

The third skill is critical thinking and problem-solving. Critical thinking and problem-solving skills include the individual's ability to reason effectively, ask main questions and solving problems, conduct alternative analysis and evaluation of a point of view and also reflect critically and process decisions. It defines critical thinking as the ability to analyze, interpret, evaluate, summarize, and organize information (Ekamilasari & Pursitasari, 2021; Purwaningsih et al., 2023; Sombria et al. 2023).

The fourth skill is creative and innovative. Creativity is often described as an essential skill that can and should be portrayed. Some researchers show how technology encourages individuals to produce high-quality work through media that provides opportunities for creativity. Creative and innovative skills can be developed like other skills with practice and free time (Medani & Sakti, 2022; Tiong & Bakar, 2022).

Leadership and responsibility is the fifth skill that need to be mastered. Leadership skills and a sense of responsibility include the ability of individuals to work happily through broad-minded communication to inspire others by example and empower others to achieve common goals (Santoso et al., 2023; Estrellan & Loja, 2021; Glushchenko, 2023; Adeoye et al., 2023).

The next skill is productivity and accountability. Skills leading to productivity and accountability include setting meeting goals, and priority needs managing time, working ethically, collaborating, and cooperation with colleagues and clients (Shirtode & Madam, 2022).

The last skill is cross-cultural and social skills. Social and cross-cultural skills of the 21st century are references to the ability to work well with colleagues, present oneself as a professional, respect, and embrace different societies and cultures.

The 21st-century media and information technology skills consist of several aspects: Media literacy, Information literacy, and Technological literacy (Saripudin et al., 2020; Shaffiyah et al., 2022). Measurement of the 21st century (21st Century Assessment) can be explained as follows. Student measuring skills and knowledge are essential for guiding learning and giving feedback to students, teachers, and parents on how students are achieving good performance standards. To encourage designing 21st-century measurement skills, the NEA determined that a comprehensive approach to assessment involving 21st-century measurement skills requires accountable nutrition of schools recommends as follows. Firstly, the assessment system is based on students' graded abilities including 21st-century skills. Secondly, 21st-century measurement skills must be listed as an integrated part of academics in mathematics, reading, and science or science. Thirdly, reporting requests must be expanded to include information on whether the skills of 21st-century learners are achieved. Fourthly, budgets should be made available for pilot projects that test the use of measurement that 21st-century measurement skills are competencies in senior high school. Lastly, budgets should be allocated for international benchmarking projects that involve high school students for comparative studies with international groups in 21st-century skills competitions.

Not only skills, the characteristics of 21st-century teachers also need to be mastered. They are learner-centered classroom and personalized instruction, student as producers, learn new technologies, go global, be smart and use smartphones, blog, go digital, collaborate, use twitter chat, connect, project-based learning, build your positive digital footprint, code, innovate and keep learning.

Another idea is then delivered. Not only it is problematic in the macro scope but also it occurs in the microscope, such. This low ability can be viewed from their learning process and student learning outcomes in Natural Science subjects. Ideally, natural studies should be able to bridge students' development of their critical thinking skills. However, the reality has turned out to be the complete opposite, natural science studies have not been able to accommodate this required ability. Based on the provisional observations at the elementary school, the following data were obtained about the learning outcomes of students in 6th A grade and 6th B grade in natural science subjects (see Table 1).

Table 1. Mid-term exam results for natural science (Academic year 2021)

Result	Explanation	6A	%	6B	%
≥ 70	Passed	7	35%	7	35%
< 70	Failed	13	65%	13	65%
Total		20	100%	20	100%

Based on Table 1, student learning success in natural science subjects is the same, namely 35% or only 7 out of 20 students whose scores reached the Standard of Minimum Completion. Meanwhile, 13 students in each class did not reach the Standard of Minimum Completion. This can be interpreted that the majority of students have not been able to understand the concept of natural science. Thus, students critical thinking skills tend to be low.

The low critical thinking skills are also supported by the results of interviews with elementary students in Islamic boarding schools. Islamic boarding school is one of the popular schools in Indonesia since Indonesia is one of the most populous Muslims in the world. Indeed, improving Islamic boarding schools will give a great impact on the nation. Therefore, many reports were conducted on Islamic schools (Anggraeni & Maryanti, 2021; Azizah et al., 2022; Nugraha et al., 2022; Al Husaeni et al., 2022; Francis et al., 2023; Thoriq et al., 2023; Jamiu, 2022a; Al Husaeni & Al Husaeni, 2022; Camral, 2022).

Based on the results of the interview, natural science learning in the classroom is still oriented toward memorization. Memorization is like remembering the dates and characters of an important event, without interpreting the purpose of the incident. This causes students only to know without thinking further about this phenomenon. Meanwhile, based on the results of observations on learning activities, students' critical thinking skills in natural science subjects tend to be low. This can be seen during the learning process; the role of teachers is more dominant than students. Likewise in the question-and-answer session, the questions asked were limited to knowledge questions whose answers were theoretical. As a result, in answering description questions, students tend to give short and not in-depth answers. This phenomenon contradicts Gokhale's opinion (Hsu, 2021), that critical thinking questions are questions that are oriented towards analysis, synthesis, and evaluation of a concept.

Many factors trigger this problem, one of which is the learning media used. In line with the explanation regarding the results of the observations made by the researcher, the media used by the teacher is only limited to textbooks and pictures (see Figure 1).

Referring to Edgar Dale's theory of experience cones (Dale's Cone of Experience), word symbols and visuals contained in books and images, are abstract. Humans are only able to remember 30% of what they see and 20% of what they hear. But humans can remember 50% of what was seen and heard, and 70% of what was seen, heard, and done at once (Hardiyansyah et al., 2019). Meanwhile, learning outcomes will be more effective if the media used is adjusted to student characteristics. If guided by Piaget's theory of cognitive development, elementary students are in a concrete operational phase. Thus, the media user needs to be concrete or real, so that students' critical thinking skills are developed optimally (Abdulah et al., 2021).

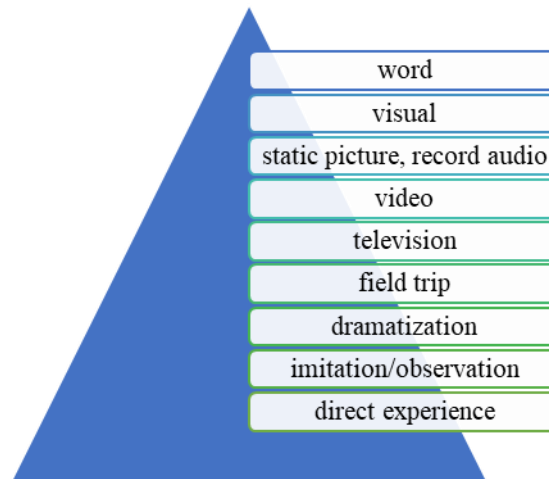


Figure 1. Edgar Dale's Experience Cones

In responding to these problems, it is necessary to find solutions so that learning can stimulate students to think critically. As stated by Saragih & Zuhri (2019) that "...to able to think critically, students need to be active in the learning. Teachers should create a classroom atmosphere in which students can develop their critical thinking skills". Therefore, we need a learning media that empowers students to develop their critical thinking skills. The multimedia that can be used is i-Spring Suite 10.

i-Spring is a tool that provides several features in PowerPoint in which there is a real dialogue simulation character with the addition of an assessment evaluation feature. Referring to Amollo et al. (2018), argument, this software can stimulate student's senses, so that they can target students' thinking abilities, especially their critical thinking skills. This is in line with Sastrakusumah (2018), in which i-Spring can package learning attractively, and can accommodate students' critical thinking skills.

So far, there has been no similar research conducted, especially at the elementary school level, so researchers are interested in carrying out research with the title "Implementation of i-Spring Suite to Improve Students' Critical Thinking Skills". This research is experimental research conducted in an Islamic boarding school (SDS).

The research hypothesis tested in this study includes:

- (1) H_0 : The critical thinking skills of students who received the i-Spring Suite 10 were fairly low.
 H_1 : The critical thinking skills of students who received the i-Spring Suite 10 were fairly high.
- (2) H_0 : There is no effect of i-Spring Suite 10 on students' critical thinking skills in 6th grade SDS IT Darul Muta'alimin in natural science subjects.
 H_1 : There is an effect of i-Spring Suite 10 on students' critical thinking skills in 6th grade SDS IT Darul Muta'alimin in natural science subjects.

The science and religion learning approach

The Science and Religion approach or the scientific and religious approach is a combination of conceptual approaches, process skills, inquiry and discovery as well as approaches with religious values (Ragadhita & Nandiyanto, 2022). The philosophy that underlies the Science and religion approach is a behavioristic constructivism approach, in which students construct their concepts in their cognitive structure based on what is already known and then implement them with values in the surrounding community and values in religion. Learning according to the Islamic perspective there are two methods, Allah SWT teaches humans, namely direct teaching which is called revelation or inspiration, and indirect teaching, this method means that Allah

teaches humans through the media, namely natural phenomena that Allah creates. Allah created nature and everything in it and the laws that apply to it. The universe holds many scientific secrets. The task of humans is to study it to find a system of natural laws that can then be used for the benefit of human life.

Humans in obtaining knowledge through empirical methods can be seen, for example, in various verses that encourage people to pay attention to natural phenomena such as Qur'an Surah Ali Imron verse 37. To obtain correct and consistent knowledge, empirical studies need to be analyzed using rational reasoning, and national reasoning needs to be based on empirical experience. Qur'an teaches that empirical and rational reasoning must be combined.

Implementation of learning mathematics in the 2013 curriculum with a science and religion approach

The 2013 curriculum is a curriculum that prioritizes understanding, skills, and character education, students are required to understand the material, be active in discussions and presentations, and have high discipline manners. Curriculum is important aspects in education, making this becoming hot topics for research (Widiaty et al., 2020; Landero et al., 2022; Maryanti et al., 2021a; Maryanti et al., 2021b; Nursaniah, 2023; Rosina et al., 2021; Maryanti & Nandiyanto, 2021; Gatta et al., 2023; Jamiu, 2022b). Skills and attitudes are aspects that are more emphasized in the curriculum in Indonesia. Skills are an emphasis on skills or abilities, for example, the ability to express opinions, discuss, hold meetings, make reports, and make presentations. Meanwhile, attitude is the formation of a strong student character.

The characteristics of learning mathematics with a science and religion approach in the 2013 curriculum are as follows. Firstly, learning mathematical concepts is still given. Secondly, students are invited to look at mathematical concepts related to studying the verses of Allah in the Qur'an and Hadith. Thirdly, students are asked to explain the verses of Allah in the universe (verse kauniyah). Fourthly, students are invited to examine the interrelationships of the benefits of using the religious approach in studying mathematical concepts to determine attitudes in everyday life, Fifthly, students are invited to look for alternative solutions to difficulties (if any) caused by the application of the science and religion approach to mathematical concepts and to determine attitudes that are applied in society. Sixthly, in the context of constructivism, students are invited to talk about science and religion related to the mathematical concepts being taught, from various directions and various starting points depending on the basic knowledge students have.

There are 4 aspects that need to be considered in the implementation of the 2013 curriculum in learning mathematics with a science and religion approach in schools. The first one is the chosen topic should bring up concepts that are already known in the curriculum and are focused on gratitude to Allah and can increase students' faith. The next aspect is concepts should be given that can touch a sense of concern about the existence of humans, and other creatures and nature as an inseparable unit. Then, the selection of concepts should be able to make students aware of mathematics which has an impact on the environment so that students' accuracy and sense of responsibility arises. The last is evaluation materials should not only focus on students' cognitive formation but also on students' affective.

The development of science and technology and their products

The development of science and technology at this time raises certain demands on our education. Various efforts have been made by various parties to make adjustments to these developments. Adjustments that are not selective will certainly cause an imbalance. We cannot possibly stem the flow of technological progress at this time, but we must respond responsibly for the benefit of education today and in the future. We must not just be consumers of technology products from other countries, but we must be able to take over the role of producers of science and technology in a planned and basic manner.

Demands for the quantity and quality of educational products

The quality demands of educational products can be observed at several levels of education. Various kinds of arguments seem to support the decision to comply with these demands. The large number of new students who will need a place is one of the reasons for attracting as many students as possible in the highest class. There is concern about losing the good name of the school, and the behavior of students if not straightened out is also a reason to straighten out as many of the highest-class students as possible. With the flood of educational products like this, it results in an increasing number of graduates who are unable to continue their education to a higher level or work. This decline in quality has far-reaching consequences for the inability to apply the knowledge acquired, create jobs, etc.

Various theories were obtained by prospective teachers during their education, especially those directly related to the teaching and learning process in class. Learning theory related to various learning methods, evaluation theory with various measurement tools, classroom management theory, and others are provisions that are expected to improve teacher quality which in turn is expected to improve the quality of educational products. For Indonesia to have high-quality citizens, quality human resources are needed who can master and develop science and technology, can use it for the welfare of the entire nation, and can counteract its negative influences. Character education has recently become a major issue of education, apart from being part of the process of forming the character of the nation's children, character education has become a focus at all levels of education from primary, secondary, to tertiary education, and has received considerable attention. This character education is also clarified through Law No. 20 of 2003 concerning the national education system, which reads: National education functions to develop capabilities and form dignified national character and civilization in the context of educating the nation's life, aiming at developing the potential of students to become human beings who believe and fear of the one and only God, have a noble character, be healthy, knowledgeable, capable, creative, independent, and be a democratic and responsible citizen.

The formation of character starts from nature given by God, which then forms identity and behavior. In the process itself, this divine nature is greatly influenced by environmental conditions, so the environment has a significant role in shaping identity and behavior. This character education is not used as a standard curriculum but is accustomed through the learning process. Apart from that regarding facilities and infrastructure, this character education does not have special facilities and infrastructure, because what is needed is a process of awareness and habituation. Many students excel in their achievements but are still low in their faith and piety which is manifested in their morals. Many brawls occur between students which are only triggered by trivial problems. This is partly caused by education which tends to emphasize the subject matter side, very little instilling moral and ethical values in learning. Therefore, character education must be instilled from an early age in basic education by implementing it in every lesson including learning mathematics.

I-Spring Suite 10

According to Muflihah & Aziz (2018), multimedia is a combination of various communication channels into a coordinated communicative experience in which an integrated cross-language channel interpretation does not exist. Meanwhile, Sari et al. (2021) defines interactive multimedia as an integration of multiple media elements (audio, video, graphic, text, animation, and interaction) into one synergic and symbiotic whole that results in more benefits for the end users than any one of the media elements can provide individually. Then, Dinc (2017) defines interactive multimedia as the use of computers to create and combine text, graphics, audio, and moving images (video and animation) by combining links and tools that allow users to communicate and interact. Thus, based on the explanation above, multimedia is a set of tools or media in the form of audio and visuals that are integrated to convey messages effectively and efficiently. In the context of learning, multimedia is used as a tool that bridges the material. Thus, it is conveyed effectively to students.

In this study, the series used is i-Spring Suite 10. Some of the features of the i-Spring Suite are as follows. The first feature is attractive and interactive. i-Spring Suite includes PowerPoint,

and it makes PowerPoint more interactive. i-Spring can be opened on multiplatform. The next feature is supporting e-Learning that can be developed to support e-learning, i-Spring Suite can insert various forms of media, so that the resulting learning media will be more attractive. Among them are being able to record and synchronize presenter videos, add YouTube videos, import or record audio, add presentation maker information and company logos, and create unique navigation and designs. Another feature is simple. Easy to distribute, usable anywhere, and optimized for the web. The last is variative. Making quizzes with various types of questions/questions, namely: true / false, multiple choice, multiple responses, type in, matching, sequence, numeric, fill in the blank, multiple-choice text.

From the explanation about i-Spring above, it can be concluded that i-Spring is a tool that can be integrated with the Microsoft Office PowerPoint application, its use is also very easy so that even beginners will be very comfortable in making learning presentation teaching materials. I-Spring can stimulate students to think more critically because it has advanced and innovative features. As stated by Amollo et al. (2018), "There are numerous benefits that students derive from the use of audio-visual aids, but quick understanding weighed more". In other words, students will benefit more from the use of audio-visual aids. The i-Spring media has features that can apply the ability of the sight and hearing senses because it can contain video presenters, animations, and various evaluation features that can be combined with PowerPoint so that they are considered capable of helping students' understanding abilities. In making media, the researcher focuses on media that can be used for classical learning.

The advantages of i-Spring can be used as an attractive thematic learning media for students to learn, and easier to prepare, can insert a quiz because it is integrated with i-Spring Quiz Maker. Meanwhile, the weakness is that not all functions in PowerPoint presentations can appear as user-defined settings, and there is a collision of voice/audio narration if there are several overlapping functions.

Critical thinking ability

According to Mitarlis et al. (2020), critical thinking is a reasonable and reflective way of thinking by emphasizing making decisions about what to believe or do. On the other side, critical thinking is an intelligent disciplinary process of conceptualizing applying, analyzing, synthesis, and evaluating active and skilled collected of, or produced by observation, experience, reflection, reasoning, or communication as a guide to belief and action (Gwede, 2019).

Based on the above paradigm, it can be concluded that the ability to think critically is an individual's ability to solve a problem systematically, logically, and analytically by mobilizing various relevant sources of information. Meanwhile, the indicators of critical thinking skills used in this study refer to Ennis's theory. Mitarlis et al. (2020) stated that five large groups cover critical thinking indicators, namely: basic clarification (making basic clarification or main clarification); the bases for the decision (giving reasons for a decision); inference (making or drawing conclusions); advanced clarification (further clarification / further clarification); supposition and integration (presumption/guesswork and integration).

METHOD

Research design

The quantitative study was conducted by experimental method. The objective of this study was to find out the effectiveness of interactive multimedia based on i-Spring suite 10 on students' critical thinking skills. The method of this study used a quasi-experimental with a non-equivalent control group design. A Nonequivalent (Pretest and Posttest) Control Group Design is the most popular approach in quasi-experimental. The experimental group and the control group were chosen not by random. The second class was given a pretest and posttest and only the experimental group received treatment. The experimental group was given treatment using i-Spring Suite 10. Thus, the design used is quasi-experimental illustrated in Table 2.

Table 2. Non-equivalent control group design

Group	Pretest	Treatment	Posttest
Experiment	O1	X	O3
Control	O2	- →	O4

Note:

- X = experimental class
- = control class
- O1 = pretest experimental class
- O2 = posttest experimental class
- O3 = pretest control class
- O4 = posttest control class

Population and sampling method

The study was conducted at SDS IT Darul Muta'alimin, which is located at JL. Raya Leles Number 56, Leles, West Java Province, Indonesia. The population was determined by homogeneous population, which is defined as having the same characteristics, unlimited population, and population which is have limited characteristics. Based on these provisions, the research population consisted of 40 students in sixth-grade student. Moreover, the sample in this study were students of SDS IT Darul Muta'alimin which consisted of 6th A grade and 6th B grade of SDS IT Darul Muta'alimin. The data were collected by the purposive sampling technique. A purposive sample is a non-probability sample that is selected based on the characteristics of a population and the objective of the study. Meanwhile, in this research, the researcher used a technique test to collect the data. An essay test is a test in a way, students, to answer the questions within 20 items.

FINDING AND DISCUSSION

A product of this research is the multimedia I-Spring with the content “Tata Surya”. Figure 2 shows the opening learning through mobile digital access by students.



Figure 2. i-Spring Suite 10

This research was conducted on two independent sample groups or two samples with different subjects. The two groups of subjects were given different treatment. The experimental class gets learning using multimedia based on i-Spring Suite 10, while the control class gets learning using audiovisual-based multimedia. The average pretest result for the experimental class was 50.10, while the average pretest result for the control class was 54.25, so the difference between the pretest results for the two classes was 4.15. Meanwhile, the average posttest result of

the experimental class was 86.80, while the average posttest of the control class was 82.20, so the difference between the posttest results of the two classes was 4.6.

Furthermore, the pretest and posttest data from the two classes were analyzed to see the results in the form of acceptance or rejection of the hypothesis. Hypothesis test used t-test. The following null hypotheses were formulated and tested at a 0.05 level of significance. Based on the post-test data, it obtained t_{observe} of 2.89 and t_{critical} 2.025. Because $t_{\text{observe}} = 2.89$ and $t_{\text{critical}} = 2.025$, then $t_{\text{critical}} > t_{\text{observe}}$ so that H_0 is rejected and H_1 is accepted. In other words, there is an effect of interactive multimedia based on i-Spring Suite 10 on the critical thinking skills of grade 6th SDS IT Darul Muta'alimin in science subjects.

Students' critical thinking skill receiving i-Spring Suite 10

In science learning activities regarding the concept of the solar system, the majority of students who received the i-Spring Suite 10 media tended to be active and responsive to the "stimulus" given. Not only during the learning process, critical thinking skills are also measured through learning outcomes. This result according to research from (Darmawan et al., 2017). Based on the results of the posttest question analysis conducted, the majority of students who received i-Spring Suite 10 learning media were able to answer questions critically, logically, and systematically. In contrast to students who receive audiovisual-based multimedia, who can provide correct answers, but the studies are not in-depth. For example, in the question of explanation number 4, "What if the planets do not circulate in their respective orbits?" Students in the experimental class answered, "There will be collisions between planets with each other because their movements are free and uncontrolled". Meanwhile, students in the majority control class could not answer the question.

The details of the results of the students' post-test answers in the experimental class and control class are presented in Figure 3.

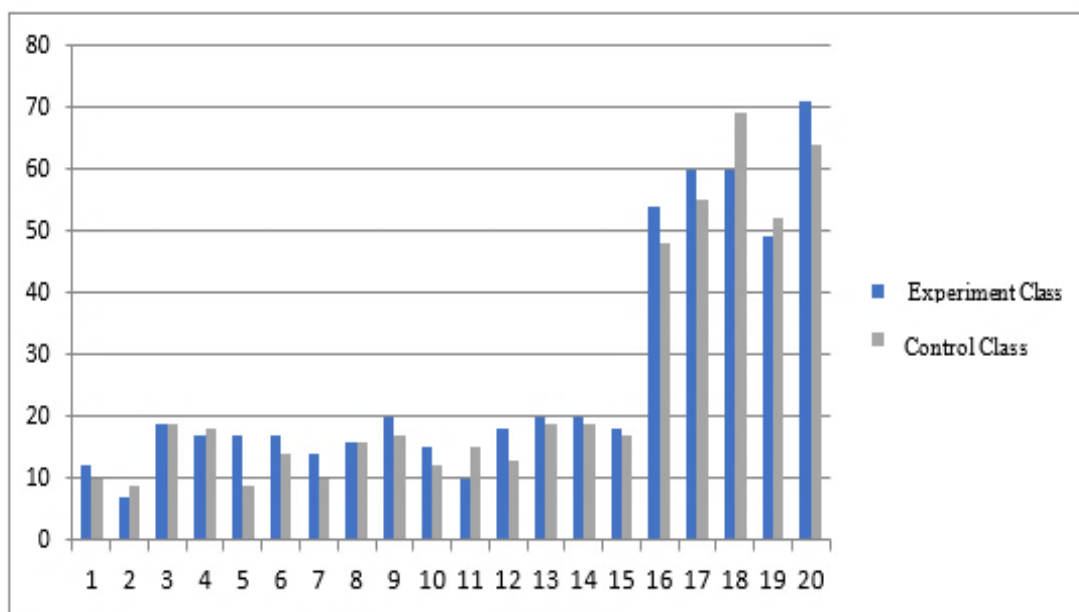


Figure 3. Posttest Results

Based on Figure 3, students in the experimental class can answer questions that are oriented toward critical thinking skills well. This indicates the critical thinking skills of students who receive the i-Spring Suite 10 media. This media can accommodate all student needs, as explained by Sousa et al. (2017) that multimedia can develop sensory abilities and attract attention and interest.

The effect of i-Spring Suite 10 on students' critical thinking skills

The results of hypothesis testing using the t-test obtained t_{observe} more than t_{critical} . If t_{observe} is greater than t_{critical} , then H_0 is rejected and H_a is accepted. In other words, there was an influence of the media i-Spring Suite 10 on the critical thinking skills of 6th grade SDS IT Darul Muta'alimin in science subjects. Rejecting the null hypothesis and accepting the alternative hypothesis, interpreting that the experimental class students had received the i-Spring Suite 10 media treatment. Thus, there was an influence on their critical thinking skills.

As had been stated, the post-test results of the two classes showed better progress. The recapitulation of the results is visualized in Figure 4.

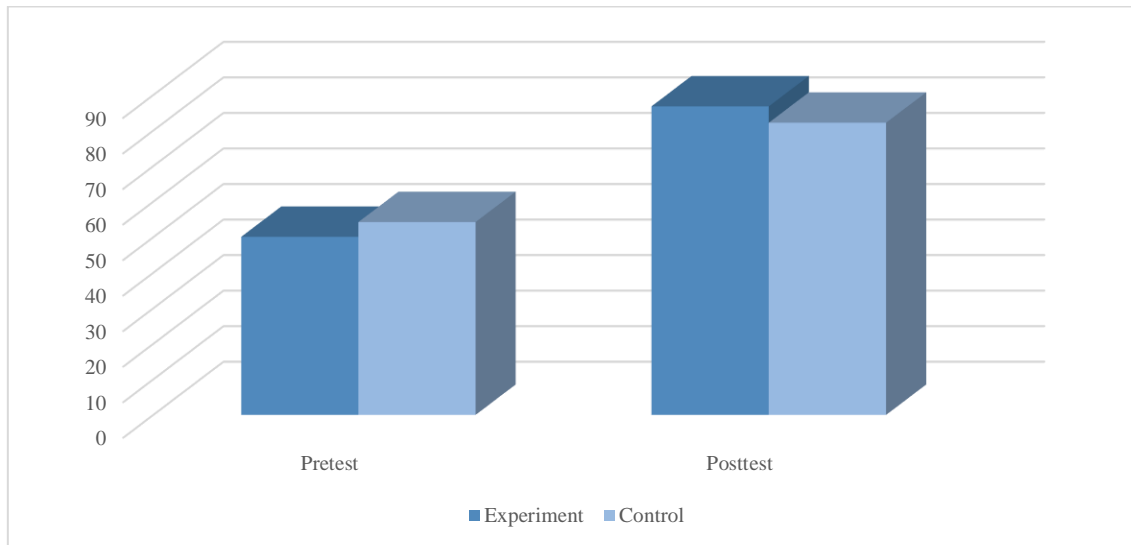


Figure 4. Pretest-Posttest Comparison of Experimental and Control Classes

Media i-Spring Suite 10 can impact students' critical thinking skills. This is in line with the statement of Sastrakusumah (2018) that students feel helped by the use of the i-Spring Suite 10 media, which in turn can improve their critical thinking skills. Offering a variety of interactive, attractive, and comprehensive features, i-Spring Suite 10 has the potential to stimulate students' critical thinking skills, especially students' critical thinking skills.

i-Spring can stimulate students to think more critically because it has advanced and innovative features. As stated by Amollo et al. (2018), "There are numerous benefits that students derive from the use of audio-visual aids, but quick understanding weighed more". In other words, students will benefit more from the use of audio-visual aids. The i-Spring media has features that can apply the ability of the sight and hearing senses because it can contain video presenters, animations, and various evaluation features that can be combined with PowerPoint so that they can help students understand abilities in making media, researchers focusing on media that can be used as classical learning. When this result of this result to be dealing with web-based learning it is possible to conduct online learning capacity, according to Darmawan et al. (2018).

In addition, in terms of evaluation, i-Spring Suite 10 has a quiz maker feature, with various types of assessments. In the exercise section, students can try various types of questions, such as true/false, multiple choice, multiple responses, type in, matching, sequence, numeric, fill in the blank, and multiple-choice text. Thus, even though at the end of the meeting they will be given a posttest in the form of multiple choices and descriptions, students have practiced solving the practice questions in a fun way. Based on this explanation, it can be concluded that there is an effect of the i-Spring Suite 10 media on the critical thinking skills of students of 6th grade SDS IT Darul Muta'alimin in science subjects.

From the results of this study, we found a novelty in interactive multimedia-based learning i-Spring Suite 10 to develop students' critical thinking skills, especially in the concept of the Solar System in science subjects in elementary schools. In this study, i-Spring Suite 10 became a bright

spot in learning problems, because it was able to offer fun learning, with interactivity in it. Thus, students can improve their critical thinking skills, because there is stimulation in it.

Furthermore, learning using this media can be disseminated through multiplatform. Thus, it can be accessed by all students, even in areas that are not touched by the internet. Thus, this media can be a good solution for disseminating learning, as well as stimulating students' critical thinking skills. So far there has been no similar research related to interactive multimedia based on i-Spring Suite 10. This media has become a new form of learning, especially at the elementary school level. Students can understand the concept of the solar system, because of the interesting presentation, ability to stimulate their senses, and being concrete. This is in line with Surya's opinion, that elementary school children are in a concrete operational phase, so there is a need for media stimulation in a concrete form in learning.

CONCLUSION

Based on the results of the research and discussion that has been expressed, the conclusions are the critical thinking ability of students who received the i-Spring Suite 10 was fairly high and there was an influence of the media i-Spring Suite 10 on the critical thinking skills of grade 6th SDS IT Darul Muta'alimin in science subjects. From the above conclusions, several suggestions can be made that result of this research is expected to make it easier for students to understand science concepts and develop their critical thinking skills. The outcome of the result will be able to upgrade learning at the same elementary school based on the Islamic religion, it is recommended that teachers can develop it in a broad scope.

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