Interactive Learning Media Based on Articulate Storyline in Social Sciences Learning for Grade V Elementary School

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A B S T R A K

Media pembelajaran yang dimiliki sekolah dan digunakan oleh guru masih terbatas. Terutama pada media pembelajaran interaktif berbasis teknologi, sehingga siswa menjadi pasif karena media yang digunakan guru belum interaktif. Tujuan penelitian ini adalah untuk mengembangkan media pembelajaran interaktif Articulate Storyline pada muatan pelajaran Ilmu Pengetahuan Sosial materi Macam-Macam Kegiatan Ekonomi di Indonesia. Jenis penelitian ini yaitu pengembangan dengan menggunakan model penelitian Borg and Gall. Observasi, wawancara dan angket digunakan sebagai metode pengumpulan data. Uji coba desain produk dilakukan oleh beberapa ahli dan siswa, antara lain, ahli materi, ahli media, dan uji skala kecil yang dilakukan oleh perwakilan siswa. Analisis kualitatif dan kuantitatif digunakan sebagai teknik analisis data. Data penelitian menunjukkan persentase tingkat kelayakan media pembelajaran interaktif berbasis Articulate Storyline oleh ahli materi sebesar 96,25% dan ahli media sebesar 96,66%. Berdasarkan hasil uji Normalized Gain diperoleh score sebesar 0,62 dicapai dengan kualifikasi cukup efektif. Disimpulkan bahwa pengembangan media pembelajaran interaktif berbasis Articulate Storyline layak digunakan untuk muatan pelajaran Ilmu Pengetahuan Sosial dalam pembelajaran siswa kelas V Sekolah Dasar. Implikasi dalam penelitian ini adalah media pembelajaran multimedia interaktif lebih efektif digunakan pada materi Macam-Macam Usaha dan Kegiatan Ekonomi di Indonesia.

A B S T R A C

The learning media owned by schools and used by teachers are still limited. Especially in technology-based interactive learning media, students become passive because the press used by teachers has not yet been interactive. This research aims to develop interactive learning media, Articulate Storyline, for Social Sciences lesson content on Various Economic Activities in Indonesia. This type of research was developed using the Borg and Gall research model. Observations, interviews, and questionnaires were used as data collection methods. Several experts and students carried out product design trials, including material experts, media experts, and small-scale tests carried out by student representatives. Qualitative and quantitative analysis are used as data analysis techniques. Research data shows that the percentage level of appropriateness for interactive learning media based on Articulate Storyline by material experts is 96.25%, and media experts are 96.66%. Based on the Normalized Gain test results, a score of 0.62 was achieved with quite effective qualifications. It was concluded that the development of interactive learning media based on Articulate Storyline is suitable for use for Social Sciences lesson content in the learning of fifth-grade elementary school students. The implication of this research is that interactive multimedia learning media is more effectively used in material on Various Businesses and Economic Activities in Indonesia.

1. INTRODUCTION

Social studies learning is learning that fosters the ability to be sensitive to social problems in society (Romaliyana et al., 2019; Wahidin, 2021). Social studies learning can also make students have a positive view of the gaps that arise, and be able to face existing problems (Wardani et al., 2018; S. Wulandari et al., 2017). The goals of social studies are interest in the social environment, knowledge and understanding of social sciences to solve social problems, as well as the ability to think positively and choose decisions to solve problems. (Puspitaningdyah & Purwanti, 2018; Wira Dharma et al., 2018). Community development

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can develop various opportunities to fulfill social responsibilities and think critically in appropriate actions. Students who still have abstract knowledge about social studies learning are helped by the presence of learning media which makes learning material easier to understand (Pitriani et al., 2017; Surya, 2017).

In the era of digitalization and globalization, education increasingly emphasizes the use of interactive learning media (Bhaskara et al., 2017; Sadikin & Hakim, 2019). Therefore, schools must be innovative and oriented towards the current drivers of civilizational development. The development of computers in the world of education is not only as an administrative tool, but also as a learning medium (SZ Dewi & Hilman, 2018; Yasa & Sutaya, 2017). Teachers need to be proactive about these things so that computers become tools that help develop learning. One of the teachers' efforts to utilize computers in learning is to develop innovative and interactive learning media.

However, the current problem is the lack of use of learning media. Previous research findings also reveal that there is a lack of use of technology-based learning media (S. Dewi et al., 2021; Sukmana & Suartama, 2019). Other findings also confirm that teachers have difficulty developing appropriate media for students (Riwu et al., 2018; Siregar & Kurniati, 2022).The use of technology-based media in real world learning is still less than optimal. This was revealed from the results of interviews with teachers and students in the VA class at SD Labschool UNNES.The problems found were first, the lack of learning media that supports social studies learning, especially in the materialTypes of Business and Economic Activities in Indonesia. Second, the low use of innovative and interactive media, especially IT-based media, makes it possible that students do not understand the material, because teachers only use text and image material. Third, teachers only use learning materials in the form of textbooks and simple pictures in the learning process. Therefore, students find it difficult to understand learning material, get bored easily, and become passive during learning activities. A lack of diversity in learning media means reduced student interest in learning.

Based on these problems, it is necessary to develop various learning media, including technology-based media (Jampel & Sudatha, 2018; Lestari et al., 2020). Teachers must be able to design and develop interactive learning media in the learning process. Creative use of learning media can increase learning efficiency and help achieve learning goals(Lampropoulos et al., 2019; Rasheed et al., 2020). Learning media is a tool for conveying messages and can be used in the education system. Teachers can use various forms of media in the learning process as tools to maximize learning (Dwi et al., 2021; Rasheed et al., 2020). IT-based learning media that can be used as an interactive media choice to create efficient learning is interactive learning media. So far, schools still use the lecture method in learning, students only listen to what the teacher says, as a result students only take notes without understanding what is said (Azmi et al., 2017; Wijaya et al., 2020). Therefore, learning in class must be improved so that students understand what they are learning. One way to create innovative learning, especially in social studies content, is to use the Articulate Storyline learning tool. Packaging learning with interactive learning media based on Articulate Storyline is expected to increase students' interest in participating in learning activities and also hone student cooperation both in groups and between groups. (Arwanda et al., 2020; Rafmana & Chotimah, 2018).

Articulate Storyline is a simple, smart, brainware-powered program with interactive tutorial steps using templates that can be published online or offline, allowing users to create projects such as personal websites, CDs, word processing, and Learning Management Systems (LMS) (Irhasyuarna et al., 2022; Saski & Sudarwanto, 2021). This media is one of the multimedia tools for developing innovative learning media with collaborative text, images, audio, video, animation and graphics. The collaboration of all this content produces media that attracts students' interest in learning (Nabilah et al., 2020; Rianto, 2020).The use of Articulate Storyline as a learning tool involves students directly so that students are actively involved in learning. The final product or output of this application consists of web-based media or HTML5, Android, Tablet and Mac iOS users. Apart from that, the Articulate Storyline learning media has several advantages, namely: 1) Applications can be published on Playstore, 2) Interactive screens, 3) Students can learn anywhere and anytime, 4) Can be accessed without an internet connection, 5) Can be used independent at home (Anitasari & Dyah Utami, 2022; Arwanda et al., 2020).

Several previous studies have shown that the development of interactive learning media based on Articulate Storyline is very feasible and effective for use in learning (Legina & Sari, 2022; Yasin & Ducha, 2017). The findings of this research indicate that learning media products are interactiverevealed that the Articulate Storyline media hasan attractive, varied display and capable of displaying different music. The interactive learning media produced by the product is an application that can be used without an internet network. Media Articulate Storyline felt to be effective for learning and can improve the learning outcomes of class V students (Arwanda et al., 2020; Jubaerudin et al., 2021).

Based on the results of previous research, it can be concluded that the development of interactive learning media based on Articulate Storyline needs to be developed for students. The difference between

this research and previous research is that this research designs and develops learning media for VA elementary school students which focuses on social studies content, material on Various Indonesian Businesses and Economic Activities. The aim of this development research is to develop innovative and interactive learning media based on Articulate Storyline, test the feasibility of this learning media, and test the effectiveness of learning media to improve social studies learning outcomes for class VA SD LabSchool UNNES.

2. METHOD

This research is development research or R&D using the Borg and Gall development model (Gall et al., 2007).To determine the feasibility of product trials, an assessment by experts is required, namely, material experts and media experts. The material experts in this development research are lecturers who have knowledge of elementary social studies content and the media experts are Educational Technology lecturers. Next, a small-scale test was carried out with representatives of three students. This research develops Articulate Storyline-based learning media products for social studies lesson content for VA class students at LabSchool UNNES Elementary School, with the aim oftesting the feasibility and effectiveness of the product in improving the learning outcomes of class VA students on the subject matter Various Economic Activities of Indonesian Society. In this research, researchers used the Borg and Gall development model for only 8 of the 10 stages, because it was adjusted to the needs and time of the research. The steps are: (1) Potential and Problems, (2) Data Collection, (3) Product Design, (4) Design Validation, (5) Design Review, (6) Product Testing, (7) Large Scale Experiments (8) Operational testing.

Data collection methods use test and non-test techniques. Test techniques are carried out through pre-test and post-test, while non-test techniques are carried out through observation, interviews, data and questionnaires. Observations were carried out directlyat SD Labschool UNNES with the subjects of this research being Class V A students. Apart from observation, this research also used research instruments given to material experts and media experts to test their suitability, as well as a media response questionnaire for teachers and students. Assessment instruments for material experts and media experts, media response questionnaire instruments for teachers and students, are shown in Table 1, Table 2, And Table 3.

Table 1. Material Expert Assessment Instrument Grid

No	Aspect	Indicator
1.	Competence	Suitability of social studies content material with the competencies achieved
2.	Conformity Aspect	Suitability of social studies content material with learning media
		Suitability of social studies lesson content with learning evaluation
3.	Language Aspects	Clarity of language

Table 2. Media Expert Assessment Instrument Grid

No	Aspect	Indicator
1.	Suitability	Suitability of learning media to learning topics
2.	Appearance	Attractive design appearance
		The quality or display quality of learning media
3.	Language Aspects	Learning media is easy to use by students and teachers
4.	Superiority	Learning media can be understood by users

Table 3. Questionnaire Instrument Grid for Teacher and Student Responses to the Media

No	Aspect	Indicator
1.	Technical quality and media presentation	Display of interactive learning media
		Instructions for use
2.	Language Aspects	The influence of material in the media on students
		Presentation of material content

This research uses qualitative and quantitative data analysis methods. To obtain qualitative data, researchers conducted observations and interviews. Meanwhile, quantitative data was obtained from the results of media feasibility tests from material experts and media experts, filling out questionnaires by teachers and students, as well as pre-test and post-test results. Data was analyzed with the help of the Excel program.

3. RESULT AND DISCUSSION

Result

The results of this development research are interactive learning media based on Articulate Storyline for VA class students at SD Labschool UNNES. This research development model was adapted from the Borg and Gall model, which includes: (1) Opportunities and Problems, (2) Data Collection, (3) Product Design, (4) Design Validation, (5) Design Review, (6) Trial Product, (7) Product Version, (8) Operational Testing. The implementation of this learning media starts from the first stage, namely, potential and problems, so that learning problems at SD LabSchool UNNES can be identified and also the types of learning media for social studies learning content. At this stage the research conducted pre-research on students in the VA SD LabSchool UNNES class using interviews, documentation and learning outcomes data. Data was obtained that limited learning resources and less than optimal use of interactive learning media made social studies learning less than optimal. This has an impact on student learning outcomes. This led to this research developing a product to solve learning problems in social studies lesson content.

The second step is data collection. After finding a problem, the next step is to find the cause of the problem. It is necessary to collect information data that will be used as input for product development. Therefore, data was collected on student learning outcomes for social studies content, social studies learning materials, and investigated the needs of teachers and students. This research determines interactive learning media based on Articulate Storyline which contains theme material 8 subthemes 1 social studies lesson content. The development of prerequisite skills equips students with skills related to the use of Articulate Storyline learning media. Based on observational research conducted at SD LabSchool UNNES, class VA students can use interactive learning media and the school has a Lab. Computers to support students in using interactive learning media.

The third step is product design. The first process is done by creating a content outline. This stage is carried out by compiling a storyboard. Product designs are implemented with pictures or diagrams as a guide for evaluation and implementation. After collecting data through a needs questionnaire, the results are reflected in the product prototype developed by the researcher. The product design was motivated by the problem of unavailability of learning media, especially in social studies subjects. To improve student learning outcomes, researchers designed and developed interactive learning media based on Articulate Storyline. Products are designed and developed into real products according to the storyboard. During the development stage, researchers develop products according to previously designed designs and storyboards. Creation of interactive learning media components consisting of text, animation, video and accompanying music. The selection of animation, text, video and accompanying music is adjusted to the material needs and learning objectives presented in the learning media. This product was developed using Articulate Storyline software, which is the main program for product creation. The final file results in the form of an HTML5 link and can be accessed without the internet. The following are the results of the development of interactive learning media based on Articulate Storyline. The results of media development are presented in Figure 1.
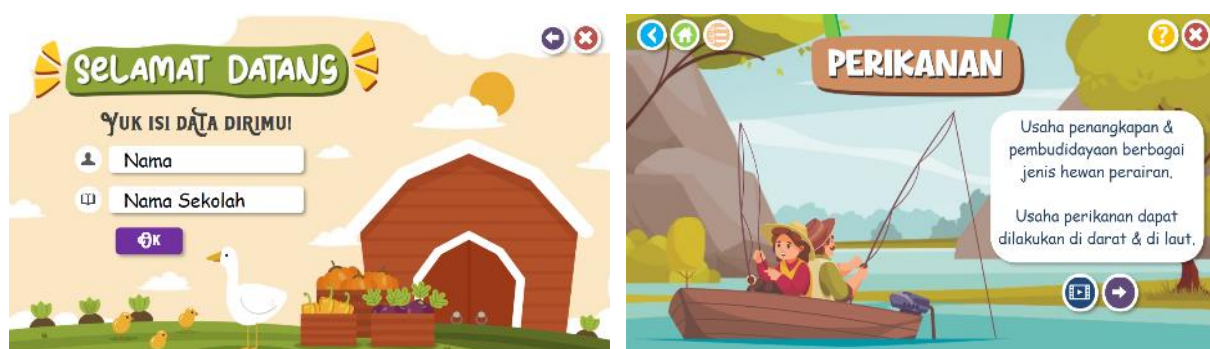

Figure 1. Results of the Development of Interactive Learning Media Based on Articulate Storyline

The fourth step is design validation. Design validation is the process of evaluating whether a rational product design is more effective or not. At this stage, validation of the feasibility of interactive learning media based on Articulate Storyline is carried out by material experts and media experts. Each expert will carry out an evaluation or validation using an instrument to assess the feasibility of interactive learning media based on Articulate Storyline. Apart from that, the two experts proposed improvements to the media that had been evaluated so that researchers could improve it. The fifth step is design revision. Based on suggestions from material and media experts who carried out the evaluation, researchers made

improvements to the design. After the product has been revised, the media is reassessed with material and media experts until it is deemed suitable for testing.The results of the media feasibility test can be seen in Table 4.

Table 4. Media Due Diligence

Respondent	Percentage	Information
Materials Expert	96.25%	Very Worth It
Media Expert	96.66%	Very Worth It

Deep data Table 4 shows the results of validation carried out by material experts and media experts. The material validation stage was carried out twice with a percentage value of 96.25%, categorized as "very feasible." Assessment by material experts confirmed that the competency aspect, suitability aspect and language aspect were considered very suitable for testing. The media validation stage was also carried out twice and obtained a percentage score of 96.66% with the criteria "very feasible." Validation from media experts shows that the suitability aspect, appearance aspect, language aspect and superiority aspect are considered very worthy of testing. Researchers received input from experts regarding learning media. Media experts provided input to summarize the menu, which previously had eight menu buttons into three menu buttons and the remaining five buttons were put into three main menus, namely introduction, materials and development profile. The final result, the menu button uses a hovers effect to appear sub menus from the main menu if the mouse hovers over the introduction, materials and development profile menus. Meanwhile, material experts provide input to add videos according to the material, so that students have an overview of the material. The results of the media revision are presented in Figure 2.
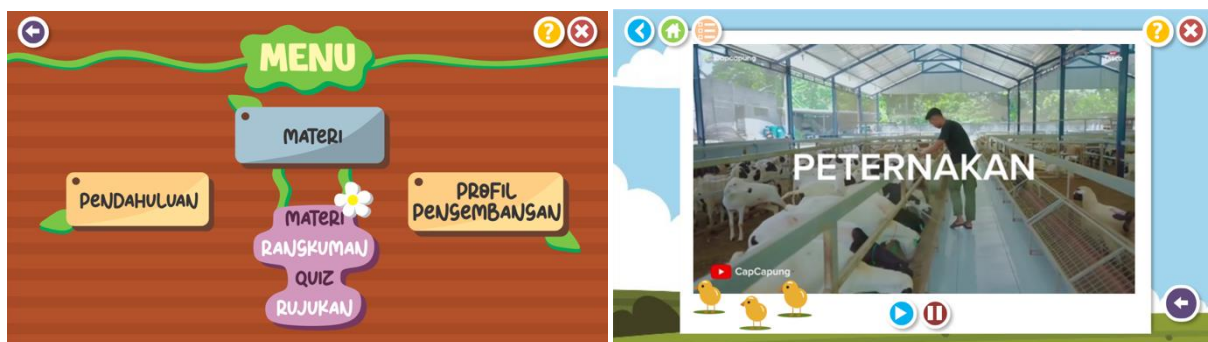

Figure 2. Revision Results of Interactive Learning Media Based on Articulate Storyline

The sixth step is product testing. Product testing is carried out with small groups. The aim of this stage is to obtain information and input regarding the effectiveness of interactive learning media based on Articulate Storyline. The product trial was carried out on a scale trial with the VA SD LabSchool UNNES class by demonstrating the use of interactive learning media based on Articulate Storyline. Researchers randomly selected and took a sample of three students. After testing the media on three students, researchers conducted a survey with teachers and students to find out responses to interactive learning media based on Articulate Storyline.The results of the small group trial were that there was input from students that students were still confused about the use of media, such as the function of the buttons on the media.

The seventh step is product revision. The revision stage was carried out to correct product imperfections obtained from teacher and student questionnaire responses. Therefore, existing products need to be refined so that they can be used more effectively. Researchers corrected the shortcomings of interactive learning media based on Articulate Storyline, so that these shortcomings could be maximized when tested in large groups.The eighth step is to carry out a usage test.After the product has been improved through small-scale testing, testing is carried out at the usage test stage. The subjects of this research were all 16 students of the VA SD LabSchool UNNES class. The design used is a pre-experimental design with a one group pre-test-post-test design model, namely pre-test before learning and post-test after learning. This treatment is able to compare conditions before and after treatment. Based on the evaluation of paraexperts and the results of experiments carried out, interactive learning media based on Articulate Storyline is classified as very suitable for use in the learning process. The experimental results of interactive learning media based on Articulate Storyline are presented in Table 5.

Table 5. Large Group Cognitive Learning Outcomes

Action	Average	The highest score	Lowest Value	Difference Average
Pre-test	75	80	65	15.31
Post-test	90	100	85	

Refers to Table 5, it can be seen that there has been an increase in the average student learning outcomes of 15.31. This shows the difference between conditions before and after students used the interactive learning media Articulate Storyline. The next stage is the evaluation stage by looking at the N-Gain value. The N-Gain test results from interactive learning media based on Articulate Storyline can be seen in Table 6.

Table 6. N-Gain Test Results

Action	Average	Average Difference	N-Gain	Category
Pre-test	75	15.31	0.62	Effective enough
Post-test	90			

Based on the results of the N-Gain test, this learning media is quite effective in increasing student understanding. To increase the achievement of the objectives of developing this learning media, researchers collected student response data using student response questionnaires when testing the product.The results of student responses show a positive response to the learning media in the Social Sciences lesson content on Various Businesses and Economic Activities in Indonesia. The results of this assessment reached 94% of the total score of 100%. From Table 6, it can be concluded that the use of interactive learning media based on Articulate Storyline is effective for application in learning.

Discussion

The research results show that interactive learning media based on Articulate Storyline is suitable for use in learning. This is because, first, interactive learning media based on Articulate Storyline can motivate students to learn.Learning runs effectively and efficiently when the interactive learning media developed is appropriate and appropriate to student characteristics (Bustanil et al., 2019; Virvou et al., 2005). Learning media can help students and teachers understand the concepts studied systematically (Biassari et al., 2021; Siddik & Kholisho, 2019). Students are enthusiastic about using interactive learning media, because it has an innovative and attractive appearance, is easy to use, clearly readable text, an attractive mix of colors, choice of font types, animated images and videos will also attract students' attention when learning. Previous research findings also reveal that the use of videos can be interesting and increase students' understanding of learning (Hudhana, 2019; Imelda et al., 2019; Muna et al., 2017). Apart from that, learning media is supported by accompanying music, thereby creating a comfortable learning atmosphere and able to increase students' learning motivation. Students can use the interactive learning media Articulate Storyline anywhere so that students become more enthusiastic about learning.

Second, interactive learning media based on Articulate Storyline can give students the opportunity to learn to understand concepts easily. This is in accordance with the function of learning media which is to help students learn (Suryawan et al., 2021; Yendrita & Syafitri, 2019). The material is presented interactively so that students can see how abstract learning material becomes concrete. Interactive learning media can concretize abstract material (GA Wulandari & Ambara, 2021; Yuniarni, 2022). Choosing learning media that uses images, videos and others can make abstract concepts more concrete. Apart from that, this learning media provides quizzes to help students understand concepts. This media also uses language that is suitable for students so that the content is easy to understand. This is supported by the statement that learning media is a tool that can be used to improve student learning outcomes (Ilmiani et al., 2020; Siamy et al., 2018). Apart from that, indicators, core competencies, learning objectives, learning materials and learning objectives contained in appropriate materials can support the smooth learning process.

Third, interactive learning media based on Articulate Storyline can provide students with independent learning. Learning media is a physical means of delivering content. Interactive and dynamic learning media is very helpful in teaching and learning activities, because the innovative learning environment can explain material with great complexity (Armansyah et al., 2019; Margarita et al., 2018).Innovative and interactive learning media is designed with technological devices, so that it can be used independently by students (Hotimah & Muhtadi, 2018; Pratiwi & Wiarta, 2021). The increase in student learning outcomes is also caused by the use of interactive learning media which includes interesting content as well as evaluation in the form of quizzes which makes students curious, challenged, relaxed and

happy. Students can carry out evaluations independently after studying social studies material. It was concluded that interactive learning media can be an efficient learning media for students to use. Apart from that, overall, interactive learning media on Various Businesses and Economic Activities in Indonesia is effectively used to increase students' understanding of the learning material.

Previous research findings also reveal that the Articulate Storyline media hasan attractive, varied display and capable of displaying different music (Nugroho & Arrosyad, 2020). The interactive learning media produced by the product is an application that can be used without an internet network so that it can increase interest in learning, as well as student learning outcomes (Arina et al., 2020; Patriani & Kusumaningrum, 2020). Based on the discussion above, it shows that interactive learning media based on Articulate Storyline is suitable for use as a tool in learning activities. This can be seen from the results of expert assessments and tests which show results according to predetermined criteria. These findings influence the learning process, especially the content of social studies lessons, thereby creating a conducive and efficient learning atmosphere. Interactive learning media based on Articulate Storyline is very suitable to support teaching and learning activities in the classroom and for students' independent learning.

The implication of this research is that interactive multimedia learning media is more effectively used in material on Various Businesses and Economic Activities in Indonesia. Researchers suggest that the learning process should be as interesting as possible. Researchers also have limitations in research, namelyIn using the Borg and Gall development model, only 8 of the 10 stages are used, because it is adjusted to the needs and time of the research. To solve this limitation, researchers did the following. The 9th stage is product revision, where researchers have carried out product revisions in the 7th stage. The 10th stage, namely mass production, researchers input the Articulate Storyline learning media on all UNNES LabSchool Elementary School computers.

4. CONCLUSION

The results of data analysis show that the interactive learning media based on Articulate Storyline in social studies content for the material on Various Businesses and Economic Activities in Indonesia as a whole is declared very suitable for use in learning activities. The results of data analysis also show thatThis learning media is quite effective in increasing students' understanding.The interactive media concept in Articulate Storyline makes it easier for students to understand subject matter that they had not previously understood. Visualization, audio and interaction in the media can help explain concepts that students do not yet understand. Using Articulate Storyline as an interactive learning medium can help improve the quality of learning and understanding among students, especially regarding the material on Various Economic Activities in Indonesia, social studies content.

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