

## Development of Learning Videos Using VideoScribe Tools in Statistics Learning at Junior High School of Muhammadiyah Koba

Elvira Anjelia<sup>1</sup>, I Nyoman Arcana<sup>2</sup>, dan Betty Kusumaningrum<sup>3\*</sup>

1,2,3 Mathematics Education, Universitas Sarjanawiyata Tamansiswa, Indonesia

\*Corresponding Author: [betty.kusumaningrum@ustjogja.ac.id](mailto:betty.kusumaningrum@ustjogja.ac.id)

### ABSTRACT

Advances in Information and Communication Technology (ICT) have been used in the manufacture of learning media for various subjects. This study aims to develop a mathematics learning video using the YouTube-based VideoScribe application on statistics material for class VIII SMP and test the feasibility of the developed learning video. The research method used is the Research and Development method with the ADDIE model, namely Analysis (analysis), Design (product design), Development (product development), Implementation (implementation), and Evaluation (evaluation). The subjects of this study were 20 students of class VIII SMP Muhammadiyah Koba. The data collection instruments used in this study were media validation questionnaires (YouTube learning), student response questionnaires, and learning outcomes tests (THB). The result of this research is a product in the form of a VideoScribe-based learning video which is then uploaded to YouTube which is valid, practical, and effective. The validity test obtained a score of 3.96 with a valid category, field trials obtained a score of 3.67 with a good category and 70% of students met the KKM.

**Keywords:** Learning videos, VideoScribe, Statistics.

### ABSTRAK

Kemajuan Teknologi Informasi dan Komunikasi (TIK) telah dimanfaatkan dalam pembuatan media pembelajaran untuk berbagai mata pelajaran. Penelitian ini bertujuan untuk mengembangkan video pembelajaran matematika menggunakan aplikasi VideoScribe berbasis YouTube pada materi statistika kelas VIII SMP dan menguji kelayakan video pembelajaran yang dikembangkan. Metode penelitian yang digunakan adalah metode Research and Development dengan model ADDIE yaitu Analysis (analisis), Design (desain produk), Development (pengembangan produk), Implementation (implementasi), dan Evaluation (evaluasi). Subjek penelitian ini adalah 20 siswa kelas VIII SMP Muhammadiyah Koba. Instrumen pengumpulan data yang digunakan dalam penelitian ini adalah angket validasi media (YouTube learning), angket respon siswa, dan tes hasil belajar (THB). Hasil dari penelitian ini adalah produk berupa video pembelajaran berbasis VideoScribe yang kemudian diunggah ke YouTube yang valid, praktis, dan efektif. Uji validitas diperoleh skor 3,96 dengan kategori valid, uji coba lapangan diperoleh skor 3,67 dengan kategori baik dan 70% siswa memenuhi KKM. Abstrak ditulis dalam Bahasa Indonesia dan Bahasa Inggris menggunakan huruf *Times New Roman* 10 pt, spasi tunggal. Abstrak merupakan inti sari semua kandungan makalah. Abstrak mencakup tujuan penelitian, metode penelitian, dan hasil yang dicapai. Abstrak tidak lebih dari 200 kata. Di bawah abstrak, cantumkan 3-6 kata kunci yang spesifik terkait dengan naskah.

**Kata Kunci:** Video pembelajaran, VideoScribe, Statistik

Received: August 30, 2022

Accepted: November 14, 2022

Published: November 15, 2022

**How to Cite:** Anjelia, E., Arcana, I.N., & Kusumaningrum, B. (2022). Development of Learning Videos Using VideoScribe Tools in Statistics Learning at Junior High School of Muhammadiyah Koba. *Union: Jurnal Ilmiah Pendidikan Matematika*, 10 (3), 371-380. <http://dx.doi.org/10.30738/union.v10i3.13149>

## INTRODUCTION

The progress of information and communication technology is growing very rapidly in the 21st century (Arigiyati et al., 2021). The development of information and communication technology is currently in line with the number of social media users in the community. Social media is a means of disseminating information with the aim that its users can easily obtain information (Amedie, 2014). One of the social media that is widely used by the public in the latest era is YouTube (Nurbaiti & Arcana, 2019). YouTube is a means of disseminating information in the form of videos online and the main use of this site is as a medium for searching, viewing, and sharing original videos to and from all corners of the world via the web (Allgaier, 2019; Indiarti & Arcana, 2019).

Video is an effective audio-visual medium to focus attention in small or large groups (Lee et al., 2011). Internet users visit YouTube not only for entertainment, but also to learn and obtain information (Moghavvemi et al., 2018). The use of interactive videos such as YouTube into the learning process will improve students' understanding and mastery of skills (Wahyuni & Utami, 2021). One tool that can be used to develop a learning video is Sparkol VideoScribe (Wijayanti, 2018). Sparkol VideoScribe is a very effective tool used to explain complex concepts to become more interesting (Nulhakim et al., 2019). This software helps explain the concept maps, conversation illustrations in an impressive new way so that students can enjoy the learning process (Allbon, 2019; Nurbaiti & Arcana, 2019).

Based on observations of 8<sup>th</sup> class students of Junior High School of Muhammadiyah Koba on statistical material, especially on the material of analyzing data and determining the size of the data distribution, most of the students have difficulty because they are less accurate in predicting analysis and data and there are many formulas in determining the size of the data distribution so that students become confused and less interested in learning it. Based on the results of observations in class VIII of Junior High School of Muhammadiyah Koba on statistical material, especially on the material of analyzing data and determining the size of the data distribution, most students have difficulty because of the lack of accuracy in predicting analysis and data as well as many formulas in determining the size of the data distribution so that students become confused and less interested in learning it. Sparkol VideoScribe software has its own uniqueness, which is that it can combine moving animations, images, music and sound, this will help and make students more interested so that it will facilitate the learning process (Athena & Kiptiyah, 2018; Perdana Putra et al., 2021; Wibowo & Zen, 2022). One of the media that can be used as a learning tool is YouTube learning with Sparkol VideoScribe which is practical and can be accessed anytime

and anywhere, both online and offline (after downloading from YouTube) ((Lestari & Wibawa, 2021; Septianti et al., 2020; Sofyan et al., 2019). YouTube using Sparkol VideoScribe can help teachers deliver learning to students in remote areas as well as an alternative learning media platform in the midst of this COVID-19 pandemic (Widiari & Astawan, 2021; Widiastuti A et al., 2021). However, in reality, based on observations at the Junior High School of Muhammadiyah Koba that the use of learning media based on YouTube development videos using Sparkol VideoScribe for the subject matter of statistics does not yet exist. This is expected to help and facilitate students in the learning process.

## **METHOD**

This research method uses the Research and Development (R&D) method. Research and Development is a research method used to produce certain products, and test the effectiveness of these products (Richey et al., 2004; Sugiarti & Arcana, 2018; Sugiyono, 2016). This research will develop a learning media which in this case will develop a statistical learning YouTube product using Sparkol VideoScribe. This research design tests the results of products that have been developed using a one-shot case study (Sugiyono, 2016) in testing the results of products that have been developed where there is a group that is given treatment and the results are observed.

This research model uses the ADDIE development model. The ADDIE model was developed by Dick & Carry (1996) which consists of Analysis, design, development, implementation, and evaluation. Analysis is the process of identifying the problems and needs that exist in the research sample. Design (product design) is the process of making a media display design that will be developed. Development is the stage of making learning videos according to the design at the design stage and creating a YouTube account. Implementation is the stage of implementing learning videos on a small and large scale. Evaluation (evaluation) is the stage of assessing the product developed. The research subjects used as test subjects were students of class VIII Junior High School of Muhammadiyah Koba where 5 students were taken for a limited field test and 15 students for the main field test. Selection of students as research subjects using random sampling method where research subjects are selected randomly (Kusumaningrum & Wijayanto, 2020). The object of this research is the development of Sparkol VideoScribe based learning YouTube on the subject matter of "statistics". The product development site was carried out in the Mathematics Education Study Program, Universitas Sarjanawiyata Tamansiswa, while the test site was carried out at the Junior High School of Muhammadiyah Koba.

The data collected in this study are qualitative data and quantitative data. In this study, data collection was carried out using a validation questionnaire for the media (YouTube learning), student response questionnaires, and learning outcomes tests. The questionnaires used in this study were validator questionnaires and student response questionnaires. The validator questionnaire was validated first by media experts and material experts. Product validation was carried out to assess the feasibility of the learning YouTube developed both in terms of material, appearance, and effectiveness. Meanwhile, the student response questionnaire was used to determine the student's response to the product being developed. The data collection with learning outcomes tests is used to determine the final ability of students after using YouTube learning.

Technical data analysis in this research is qualitative data analysis and quantitative data analysis. Data that has been obtained through questionnaires from media and material experts, as well as students will be converted into quantitative values. The following are the scoring rules in this study.

Table 1. Scoring Rules Score Description

Information	Score
Very Strongly Agree	5
Strongly Agree	4
Agree	3
Disagree	2
Strongly Disagree	1

In Table 1, it is explained that there are 5 answer choices in the scoring rules related to the material and media developed. The validator will choose an answer where each answer has a different score.

Table 2. Criteria and Value Limits

Criteria	Value Limit
Very Good	$\underline{X} > M + 1,8SD$
Good	$M + 0,6SD < \underline{X} \leq M + 1,8SD$
Less Good	$M - 0,6SD < \underline{X} \leq M + 0,6SD$
Not Good	$M - 1,8SD < \underline{X} \leq M - 0,6SD$
Very Not Good	$\underline{X} \leq M - 1,8SD$

In Table 2, it is explained that there are 5 criteria and value limits presented to determine the validity and feasibility of YouTube for learning statistics material using

Sparkol VideoScribe. The results of the assessment scores of each validator are searched for the average first and then the results are converted by looking at Table 2. In Table 3, it is explained that the student response questionnaire to the use of the product has 5 answer choices according to the content of the question. Students will provide answers where each answer has a different score.

Table 3. Scoring Rules

Information	Score
Very Strongly Agree	5
Strongly Agree	4
Agree	3
Disagree	2
Strongly Disagree	1

In Table 4, it is explained that there are 5 criteria and value limits presented to determine the effectiveness of YouTube statistics learning using Sparkol VideoScribe. The results of the assessment scores of each student are searched for the average first and then the results are converted by looking at Table 4.

Table 4. Criteria and Value Limits

Criteria	Value Limit
Very Good	$\underline{X} > M + 1,8SD$
Good	$M + 0,6SD < \underline{X} \leq M + 1,8SD$
Less Good	$M - 0,6SD < \underline{X} \leq M + 0,6SD$
Not Good	$M - 1,8SD < \underline{X} \leq M - 0,6SD$
Very Not Good	$\underline{X} \leq M - 1,8SD$

In Table 5 it is explained that there are 5 criteria for answering the criteria for the assessment of academic completeness that will be used to show the category of students' academic skills classically.

Table 5. Criteria for Assessment of Academic Completeness

Criteria	Value Limit
Very Good	$p > 80$
Good	$60 < p \leq 80$
Less Good	$40 < p \leq 60$
Not Good	$20 < p \leq 40$
Very Not Good	$p \leq 20$

In **Table 6** it is explained that there are 5 categories of correlation coefficients as an amplifier of the feasibility level of YouTube learning that is made, therefore the student response questionnaire is correlated with the results of the student learning test. Calculation of the correlation coefficient in this study using the SPSS 20 application.

Table 6. Coefficient Interval Correlation Coefficient

Relationship Level	Coefficient Interval
0,00 – 0,199	Very Low
0,20 – 0,399	Low
0,40 – 0,599	Currently
0,60 – 0,799	Strong
0,80 – 1,000	Very Strong

## RESULTS AND DISCUSSION

The researcher describes the results of the development of the Research and Development (R&D) method with the ADDIE development model which consists of five stages, namely Analysis, Design, Development, Implementation and Evaluation.

### Analysis

Based on the problems that have been explained in the results of the analysis phase, it is known that the complete facilities and infrastructure in schools have not been supported by optimal utilization. In addition, the expertise of teachers and students in using digital technology in this advanced era has not been utilized properly. Therefore, the researcher developed a product in the form of YouTube learning using the Sparkol VideoScribe software, where the determination of the title and indicators were adjusted to the competencies contained in the syllabus.

### Design

After the analysis stage, the researchers carried out the next stage, namely the product design stage. At the design stage, product design is carried out in the form of videos with statistical learning materials using Sparkol VideoScribe software which contains basic competencies, competency achievement indicators, learning YouTube scripts and making YouTube channels. The creation of a YouTube channel is used as a means for publishing learning videos that have been made with the Sparkol VideoScribe software. Therefore, at this stage in addition to designing research products, you also have to create a YouTube channel that is created under the name "Learning Mathematics".

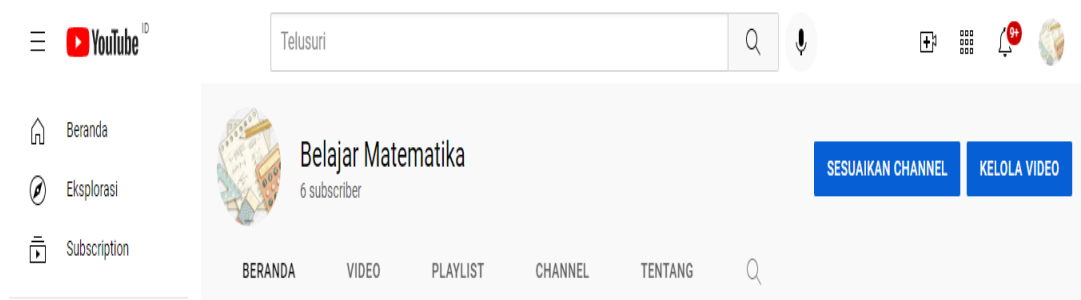


Figure 1. YouTube channel

## Development

At the product development stage which is the main stage in making or compiling modules into a unified whole guided by the YouTube learning script that has been designed. There are 3 stages in the product development stage, namely the pre-production stage, the production stage and the post-production stage (Puspita et al., 2022). In the pre-production stage, the researchers prepared the required software, hardware and online applications, while at the production stage the researchers made videos separately by dividing the material into several sub-topics with the help of Sparkol VideoScribe. As for the opening video and closing video, the researcher uses the KineMaster application. After creating several videos separately, the videos are put together using the KineMaster support application. In the post-production stage, researchers conduct reviews to experts, the purpose of reviewing by experts is to obtain input, criticism and suggestions for improvement for the perfection of the product being developed (Meiliani & Arcana, 2019). Expert input is edited as a reference for revision, besides filling out a validation questionnaire will determine the feasibility of the media to be tested on students.

This revision was carried out as a step to make a decent product, the product developed underwent several revisions to several components that had to reproduce the animation, the voice had to be clarified again, using the latest and updated questions. These errors must be revised by researchers so that the products made are better. The results of the validation test by media and materials experts show that YouTube for learning statistics material is declared to be very valid. This explains that YouTube statistics learning in junior high school using Sparkol VideoScribe is feasible to use and try out for students (Utami & Arcana, 2019).

## Implementation

At the implementation stage, the researcher conducted a limited field test and a main field test. In a limited field trial, the product was tested on 5 students. Then the main field trial was carried out with 15 students as research subjects. The results of the recapitulation of

student questionnaires indicate that the questionnaire is valid and states that the product developed is feasible to use.

#### Evaluation

In the evaluation results, it is explained that the purpose of this stage is to see the influence of YouTube learning on student test results. Based on the calculation of correlation using SPSS, it shows that there is a unidirectional relationship between student response questionnaires and student learning test results. This also explains that there is an influence of YouTube learning on student learning test results

### CONCLUSION

Based on the results of research on the development of YouTube statistics learning at Junior High School of Muhammadiyah Koba using Sparkol VideoScribe, conclusions can be drawn. After the product was tested on students, a student questionnaire was given so that a student questionnaire score was obtained with an average of 3.67. This shows that YouTube learning is in good criteria and is suitable for learning. In addition, it is also supported by the existence of a learning outcome test with a student passing percentage of 70%, namely 14 students who meet the KKM (Minimum Completeness Criteria) from a total of 20 research subjects.

Obtaining the correlation value between student response questionnaires and student learning outcomes tests with a result of 0.491 also shows that there is a unidirectional relationship between the two variables, thus explaining that there is an influence of YouTube learning on student learning outcomes tests. Therefore, the researcher hopes that there will be other developments related to the development of learning YouTube using Sparkol VideoScribe, which supports learning and can be a contribution in the world of education.

### REFERENCES

- Allbon, E. (2019). View of Changing mindsets: encouraging law teachers to think beyond text. *J. Open Access L*, 7(1), 1–16. <https://ojs.law.cornell.edu/index.php/joal/article/view/96/93>
- Allgaier, J. (2019). Science and Environmental Communication on YouTube: Strategically Distorted Communications in Online Videos on Climate Change and Climate Engineering. *Frontiers in Communication*, 4(36), 1–15. <https://doi.org/10.3389/fcomm.2019.00036>
- Amedie, J. (2014). The Impact of Social Media on Society. *International Journal of Market Research*, 56(3), 387–404. [http://scholarcommons.scu.edu/engl\\_176/2](http://scholarcommons.scu.edu/engl_176/2)



- Arigiyati, T. A., Kusumaningrum, B., & Kuncoro, K. S. (2021). Pemanfaatan Videoscribe Dalam Peningkatan Kompetensi Guru. *Kanigara: Jurnal Pengabdian Kepada Masyarakat*, 1(1), 1–9. <https://doi.org/10.36456/kanigara.v1i1.3097>
- Athena, T., & Kiptiyah, M. (2018). The Effect of Sparkol Videoscribe As Media in Presenting the English Material. *Jurnal Internasional*, 1(2), 67–72.
- Indiarti, S., & Arcana, I. N. (2019). Pengembangan Youtube Pembelajaran Kedudukan Garis Terhadap Lingkaran Di SMA. *UNION: Jurnal Ilmiah Pendidikan Matematika*, 7(1), 125–134. <https://doi.org/10.30738/union.v7i2.4054>
- Kusumaningrum, B., & Wijayanto, Z. (2020). Apakah Pembelajaran Matematika Secara Daring Efektif?(Studi Kasus pada Pembelajaran Selama Masa Pandemi Covid-19). *Kreano, Jurnal Matematika Kreatif-Inovatif*, 11(2), 139–146.
- Lee, J. S., De Simone, F., & Ebrahimi, T. (2011). Efficient video coding based on audio-visual focus of attention. *Journal of Visual Communication and Image Representation*, 22(8), 704–711. <https://doi.org/10.1016/j.jvcir.2010.11.002>
- Lestari, N. P. Y., & Wibawa, I. M. C. (2021). Learning Videos to Improving Students' Reading Comprehension in Elementary School. *International Journal of Elementary Education*, 5(2), 276. <https://doi.org/10.23887/ijee.v5i2.34405>
- Meiliani, H., & Arcana, I. N. (2019). Pengembangan Youtube Pembelajaran Kedudukan Titik Terhadap Lingkaran di SMA Menggunakan VideoScribe. *UNION: Jurnal Pendidikan Matematika*, 7(2), 217–226.
- Moghavvemi, S., Sulaiman, A., Jaafar, N. I., & Kasem, N. (2018). Social media as a complementary learning tool for teaching and learning: The case of youtube. *International Journal of Management Education*, 16(1), 37–42. <https://doi.org/10.1016/j.ijme.2017.12.001>
- Nulhakim, L., Istiqomah, I., & Saefullah, A. (2019). The influence of using Sparkol videoscribe ' s learning media to increase science literacy on pressure concept. *AIP Conference Proceedings*, 2169(1), 020003.
- Nurbaiti, N., & Arcana, I. N. (2019). Pengembangan YouTube Pembelajaran Persamaan Garis Singgung Lingkaran di SMA Menggunakan VideoScribe. *UNION: Jurnal Ilmiah Pendidikan Matematika*, 7(2), 227–238. <https://doi.org/10.30738/union.v7i2.4057>
- Perdana Putra, I. W. D., Gading, I. K., & Dibia, I. K. (2021). Science Learning with VideoScribe-Based Learning Video for Elementary School Students. *Jurnal Ilmiah Sekolah Dasar*, 5(2), 260. <https://doi.org/10.23887/jisd.v5i2.35883>
- Puspita, R., Yani, E., Dinnisa, K., Kusumaningrum, B., Kuncoro, K. S., Ayuningtyas, A. D., & Irfan, M. (2022). Interactive Math Path: Permainan Ular Tangga Berbasis Etnomatematika. *UNION: Jurnal Ilmiah Pendidikan Matematika*, 10(1), 93–102.
- Richey, R. C., Klein, J. D., & Nelson, W. a. (2004). Developmental research: Studies of instructional deisgn and development. In *Handbook of Research for Educational Communications and Technology*.
-

- Septianti, A. S., Purnomo, M. E., & Indrawati, S. (2020). Learning Media Development of Analyzing Poetry-Building Element Using Sparkol Videoscribe. *JPI (Jurnal Pendidikan Indonesia)*, 9(4), 586. <https://doi.org/10.23887/jpi-undiksha.v9i4.28251>
- Sofyan, A., Rafiudin, & Soraya, R. A. (2019). The Development of Learning Media Using Sparkol Videoscribe Software on Natural Science Education Subjects. *Proceedings of the International Conference on Education Technology (ICoET 2019)*, 372(ICoET), 16–21.
- Sugiarti, R., & Arcana, I. N. (2018). Pengembangan Media Pembelajaran Berbasis Komputer Untuk Model Example Non Example pada Materi Geometri Di SMP. *Prosiding Seminar Nasional Pendidikan Matematika Etnomatnesia*, 1060–1066. <https://jurnal.ustjogja.ac.id/index.php/etnomatnesia/article/view/2461/0>
- Sugiyono. (2016). *Metode penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta.
- Utami, N. T., & Arcana, I. N. (2019). Pengembangan Youtube Pembelajaran Persamaan Lingkaran di SMA Menggunakan Videoscribe. *UNION: Jurnal Ilmiah Pendidikan Matematika*, 7(1), 155–165.
- Wahyuni, A., & Utami, A. R. (2021). The Use of Youtube Video in Encouraging Speaking Skill. *Pustakailmu.Id*, 7(3), 1–9. <http://pustakailmu.id/index.php/pustakailmu/article/view/62>
- Wibowo, D. H., & Zen, M. Y. (2022). Developing Learning Media in the Form of “VAM” Based on VideoScribe to Measure The Level of Student. *JOSAR (Journal of Students Academic Research)*, 8(1), 152–163.
- Widiari, L. E. R., & Astawan, I. G. (2021). Ecosystem Learning with Sparkol Videoscribe-Based Learning Media. *International Journal of Elementary Education*, 5(2), 231. <https://doi.org/10.23887/ijee.v5i2.34731>
- Widiastuti A, T. T., Faiqoh, A., Kariadinata, R., & Sugilar, H. (2021). Development of sparkol videoscribe on mathematical representation. *IOP Conference Series: Materials Science and Engineering*, 1098(3), 032021. <https://doi.org/10.1088/1757-899x/1098/3/032021>
- Wijayanti, P. S. (2018). Pengembangan Bahan Ajar Digital Bahasa Inggris Matematika Dengan Bantuan Videoscribe Melalui E-Learning. *UNION: Jurnal Ilmiah Pendidikan Matematika*, 6(2), 147–156. <https://doi.org/10.30738/v6i2.1566>