

TRENDS IN USING POWERPOINT MEDIA DISPLAY PATTERNS FOR NATURAL SCIENCE INSTRUCTION IN KUBU RAYA AND NORTH KAYONG DISTRICTS WEST KALIMANTAN

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ABSTRAK

Tujuan penelitian ini adalah untuk memetakan pola tampilan slide powerpoint yang digemari oleh siswa di jenjang PAUD hingga di jenjang SMA di Kabupaten Kubu Raya dan Kayong Utara, Kalimantan Barat, Indonesia. Sampel dalam penelitian ini berupa siswa dan guru-guru yang mengajar materi IPA terdiri dari 12 guru PAUD di Kubu Raya, 8 guru SD di Kubu Raya, dan 23 guru SMA di Kayong Utara. Siswa yang berpartisipasi dalam penelitian ini terdiri dari 249 siswa dari seluruh siswa di sekolah tersebut. Masing-masing jenjang pendidikan terdiri dari 2 sekolah yang merancang pembelajaran secara kolaboratif (plan). Selanjutnya guru melaksanakan open class dan diakhiri dengan refleksi. Pelaksanaan ini dilaksanakan sebanyak 2 siklus di masing-masing jenjang. Materi yang diamati dalam pembelajaran di PAUD adalah tentang Pengenalan organ tubuh, materi yang diteliti di SD adalah tentang makhluk hidup, dan di SMA tentang sistem Indera Manusia. Hasil penelitian menunjukkan bahwa terdapat 16 pola tampilan media yang terbagi dalam 5 kelompok yaitu complementary, analogous, triadic, split, dan tetradic. Pola ini dideteksi dari siklus plan pada masing-masing jenjang. Pola ini merupakan pola yang digunakan guru dalam menampilkan media pembelajaran di kelas. Berdasarkan hasil angket dari 249 siswa dari jenjang PAUD hingga jenjang SMA diperoleh informasi bahwa 1) 63% siswa secara keseluruhan dari PAUD hingga SMA lebih menyenangi pola tampilan media berupa split dibandingkan complementary, analogous, triadic, dan tetradic, 2) pola tampilan media tetradic dominan diminati oleh siswa PAUD dan SD, 3) siswa sekolah menengah lebih menyukai pola tampilan media berupa analogous. Diharapkan kepada para guru untuk merancang media pembelajaran sesuai dengan karakteristik siswa yang dididik.

Kata kunci: *pola tampilan media, pembelajaran IPA*

ABSTRACT

The purpose of this study was to identify and map the patterns of PowerPoint slides which were favored by students in PAUD (Early Childhood Education) up to high school levels in Kubu Raya and Kayong Utara Districts, West Kalimantan, Indonesia. The samples in this study consisted of students and teachers who taught science materials consisting of 12 PAUD teachers in Kubu Raya, 8 elementary school teachers in Kubu Raya, and 23 high school teachers in Kayong Utara. Students participating in this study consisted of all 249 students in the school. Each level of education consisted of 2 schools that design collaborative learning (plan). In the second step, the teacher opened the class and the last step was reflection. This implementation was carried out in 2 cycles at each level. The material observed in PAUD instruction was about the introduction of body organs while the material examined in the elementary school was about living things, and in high school about the human sensory system. The results showed that there were 16 patterns of media display which were divided into 5 groups, namely complementary, analogous, triadic, split, and tetradic. These patterns were detected from the cycle plan at each level. These patterns were used by the teachers in the classroom. Based on the results of questionnaires from 249 students of PAUD up to high school levels, the following information was obtained: 1) 63% of students as a whole from PAUD to Senior High School preferred the display pattern of the media in the form of splits compared to complementary, analogous, triadic, and tetradic. 2) The tetradic display pattern was mostly favored by early childhood and elementary school students, 3) High School students preferred the analogous display pattern of the media. It was expected that teachers design learning media in accordance with the characteristics of students they are teaching.

Keywords: *media display pattern, natural science instruction*

INTRODUCTION

Since the development of instruction is oriented to the industrial revolution, it requires a teacher, as an educator, to be ready and able to create instruction that match the goals and objectives (Darmawan, 2014). The target of education is students who have characteristics at every level of education (Bruner & Jerome, 1966). Media is a means that helps teachers to be able to teach in accordance with the objectives. According to Heinich, et al. (1982) media can be interpreted as anything that can bring information from information sources to recipients of information.

PowerPoint media is one of the most well-known media to all teachers in Indonesia (Musfiquon, 2012). The making of PowerPoint media is more practical compared to other ICT-based media such as animation, learning videos, documentary films, e-books, and e-comics (Alessi & Trollip, 2001). However, sometimes because it is seen as the most practical, teachers sometimes disregard the procedures and patterns of making the PowerPoint media that match the characteristics of the students.

PowerPoint media is useful for explaining the presentation of messages so as to avoid verbal domination (Sadiman, 2014). Based on the field studies (questionnaires and interviews) conducted by the researchers in 4 schools in North Kayong (12 April 12 2018) and in Kubu Raya (4 December 2018) in collaboration with the Natural Science Subject Teachers Association in Kayong Utara and Kubu Raya Districts, supporting facilities such as LCD projectors are scarce; 27 out of 35 teachers (78%) adopted and modified teaching materials in the form of PowerPoint slides obtained from the internet. These teachers believe that the modification of teaching materials presented in PowerPoint slides downloaded from the internet is not in accordance with the characteristics of their students. Despite being modified, sometimes the PowerPoint media has not been used optimally by the teachers, whereas in the Regulation of the Minister of Education and Culture Number 22 of 2016, it has been determined that every teacher is required to use instructional media when teaching.

Teacher's limited ability in the use of ICT-based media is the main reason every teacher is not too interested in making PowerPoint slides since there Features and applications in the PowerPoint that they are familiar with. Teachers have a lot of workloads starting from preparing learning tools, making evaluation tools, and other administrative tasks that require most of the teacher's time in addition to teaching in the classroom. This alone has discouraged them in the making of media independently.

One of the strategies that can help teachers to prepare instruction, evaluation and learning media is to collaborate with fellow teachers. Collaborative learning is learning designed together with groups that have the same goals and designing instruction by grouping students and making them work together to improve learning outcomes (Chun, 2006). Groups of students are guided to develop abilities in relation to cognitive, affective, and psychomotor domains (Hasan, 1993). It can be done by preparing the tools on an ongoing basis starting from planning, implementing, reflecting, and planning reinstruction. Each of these stages is known as lesson study activities.

Lesson Study is an approach to improving the learning process developed in Japan (Stepanek, 2003). Every teacher involved in lesson study activities will benefit and can always develop their professionalism (Lewis et al, 2002). Thus, through the lesson study, every teacher will get input and suggestions in improving learning tools, especially in this study, which measure the improvement of learning media. Each teacher is assisted in preparing instructional media in the form of PowerPoint slides by matching the pattern of slide shows according to the characteristics and age of each student at different levels of education ranging from PAUD (Early Childhood Education) to high school.

Method

In this study the ICT-based media examined were the PowerPoint slides used by the teachers in the class. The samples in this study were students, and teachers who taught science materials consisting of 12 PAUD teachers in Kubu Raya, 8 elementary school teachers in Kubu Raya, and 23 high school teachers in Kayong Utara. Students participating in this study consisted of 249 students from all students in the schools. Each level of education consists of 2 schools that design collaborative learning (plan). Then teachers carry out opening class activity and end it with reflection. This implementation was carried out in 2 cycles at each level. The material observed in PAUD instruction focuses on the introduction of the body organs, the material examined in elementary school is about living things, and in high school about the human sensory system. The learning process using the lesson study strategy covered the cycles as shown in Figure 1 below.

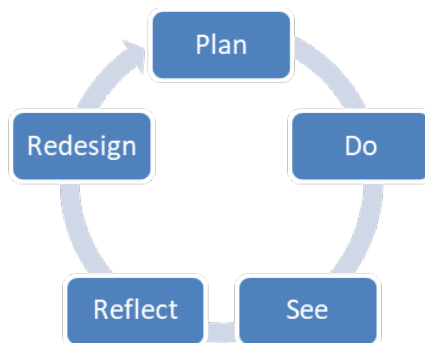


Figure 1. Lesson Study Learning Pattern in One Cycle

In Figure 1, the process is carried out at every level of school. The plan stage is the design of time, media, instructional models, and model teachers, as well as preparation of instructional tools along with observation sheets. The principals were also involved as observers in addition to teacher colleagues. Each school at each level collaborated with other schools. It was aimed at getting more inputs and suggestions based on the experience of each teacher. Each level of school took 4 (four) to 5 (five) weeks from the first cycle plan process to cycle 2 reflection. The process of measuring and analyzing the PowerPoint media slide patterns was done with the student response questionnaire modified from Heinich (1982). The questionnaire displayed a slide image without displaying the name of the pattern in question. Each statement came with 2 responses, namely *like* and *dislike*. A statement was made of 10 statements with each type of slide group consisting of 2 statements accompanied by a picture of the type of slide in question. Measuring student responses was done at the end of the open class or before reflection began. Response analysis used a Likert scale and was displayed in the form of a percentage of the dominance of interest and the preferences of students in each measured pattern.

RESULT AND DISCUSSION

The results showed that there were 16 media display patterns. Corey (2019) divided the display patterns of PowerPoint media used by teachers in the United States in 5 groups namely complementary, analogous, triadic, split, and tetradic. Referring to Corey's findings (2019), the patterns found in this study were also divided into 5 groups.

Complementary group

The display patterns of PowerPoint media included in complementary groups are patterns that describe text with images that are not prominent. The text is highlighted. In the study conducted at PAUD, it was found that 100% of the teachers used the display as shown in Figure 2 below.

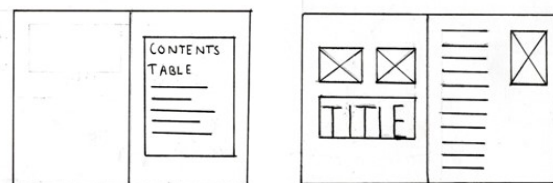


Figure 2. Display PowerPoint Media Patterns Used by teachers at PAUD in Kubu Raya

This pattern was detected in the process of designing instruction by the model teacher carried out together with 9 (nine) other teachers and 2 (two) principals. The collaboration was made in 2 meetings. The material was introduction to the body organs. The display of the media used by teachers before guidance was a complementary group. After being

presented in front of the teachers and principals involved as observers, there were suggestions and improvements to the display. The revised PowerPoint final results were 12 slides consisting of complementary, analogous, triadic, split, and tetradic types. According to Saud (2009), the process of modifying the media in the design of the learning process is important so that it is in accordance with the objectives of the instruction.

At the end of the implementation of the open class, a questionnaire was given to measure students' responses to the display of each slide media used by the teacher. In Figure 3, there are variations in student responses.

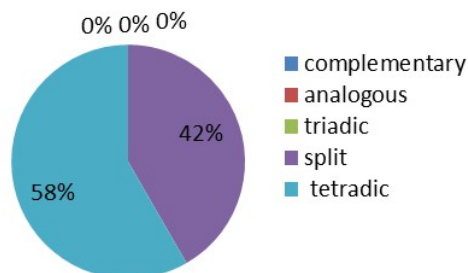


Figure 3. Variations in the Response of PAUD Students in Kubu Raya

Referring to Figure 3 above, of the 73 PAUD students who attended the lesson, most students (58%) liked the tetradic display. While the complementary initial display did not appeal to them and none of them liked it.

Tetradic group

Cloonon (2008) stated that a professional teacher must listen and document every learning feedback at the end of instruction because it is the basis of effective teaching and a reflection in achieving instructional goals (Luke, 2002; Cloonon, 2008; Burrows et al, 2009). Similar to the implementation of collaboration PAUD schools in Kubu Raya, in the elementary schools Kubu Raya, the teachers were also more dominant using the tetradic group. The tetradic group is the most preferred type of display. Tetradi is a PowerPoint slide display that displays images and text or text of 2 parts each. On each slide there are 2 display images and 2 texts as shown in Figure 4 below.

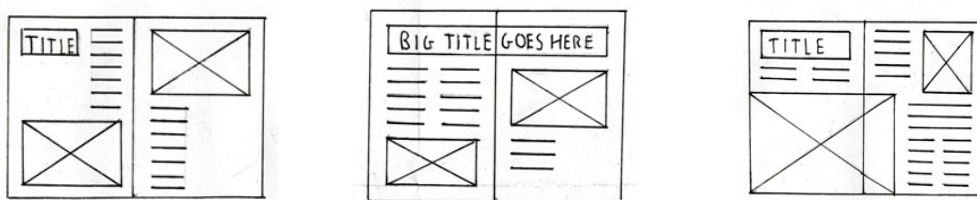


Figure 4. Display Pattern of PowerPoint Slides made by elementary school teachers in Kubu Raya

Tetradic was favored by 2 (two) schools involved in this study. This is because each display both in the form of images and text acts as an explanation of the accompanying text or image. The collaboration went well and smoothly and the implementation of the open class also went well, although the role of the observer did not yet appear dominant but had been able to provide input on improving instruction especially with regard to psychomotor students who had not been highlighted in the learning process. In connection with the slides, changes were made from 23 slides designed by the model teacher to make improvement and change the slide show which not only displays the tetradic type but also includes complementary, analogous, triadic, and split.

At the end of cycle 1, before reflection was made, the elementary school students involved were given a questionnaire and from 30 students the results of the questionnaire are shown in Figure 5 below.

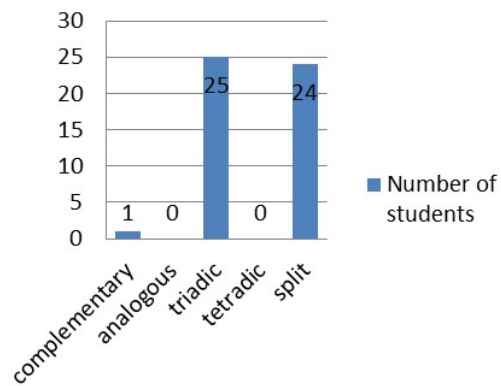


Figure 5. Analysis of the Results of Questionnaire for the Response of Students from the Kubu Raya Elementary Schools

Analogous Group

The analogous group is a slide media group pattern in which there are similarities and equivalence between the images displayed with the text. This pattern group is an appropriate pattern to be applied in secondary schools because the scope of material displayed is mostly a resume (Hashemi et al, 2011). In the instructional process at the North Kayong North High Schools, the model teacher prepared presentation slides in an analogous form as listed in Figure 6 below.

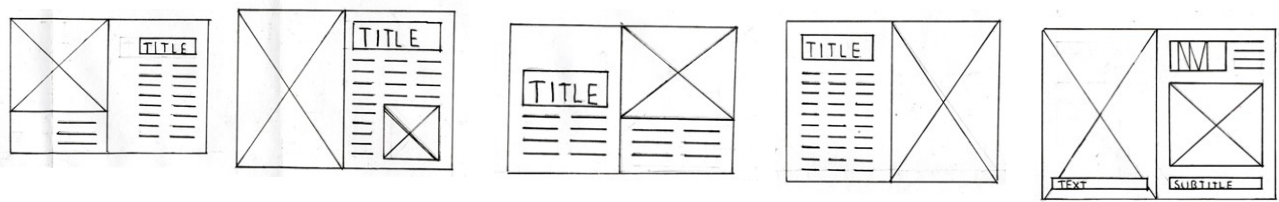


Figure 6. Slide Display Pattern used by Model Teachers at the High Schools in North Kayong

The response questionnaire given to all students involved in the learning process showed that 53 students responded that the type of slide they liked was analogous. The model teacher argued that analogous patterned slide shows are more practical, and practical media can bridge information sources with students (Trianto, 2011). The percentage can be seen in Figure 7 below.

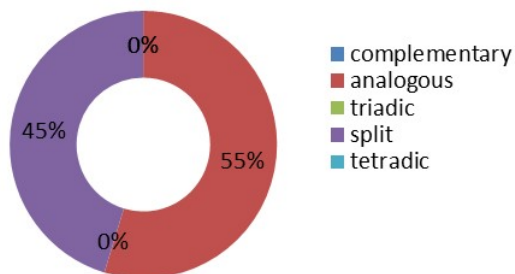


Figure 7. Analysis of Questionnaire Results of Student Response in North Kayong High Schools in the First Cycle

Triadic Group

The type of media display in the triadic pattern group is a display pattern that displays 3 (three) images in each slide. This pattern emphasizes the size and number of dominant images compared to other patterns. When given further questions to one student about the interest in this triadic pattern, the student could answer clearly. This indicates that the seriousness in the collaboration process went really well. Supported also by the opinion of Cloonon (2005) that the involvement of students in providing feedback was one of the characteristics of instruction that had been carried out well.

In the instructional process of cycle 2 at the North Kayong high schools, only 1 class could attend the instructional activity so the number of respondents in this second cycle was only 29 students. At the beginning of the *plan* process, it was found that the 80% teacher slide model uses the triadic type pattern as shown in Figure 8 below.

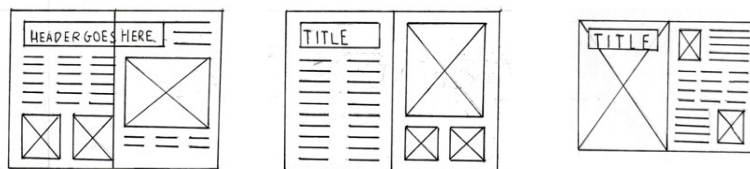


Figure 8. Triadic pattern of Model Teacher's Slides in North Kayong High Schools in Cycle 2

The results of the questionnaire given to 29 students showed that students were mostly in favor of 2 types, namely split (48%) and triadic (52%). None of the students were interested in other slide patterns such as complementary, analogous and tetradic. Figure 9 shows the results of the questionnaires given to 29 student about the patterns used by model teachers in the Kayong Utara high schools in cycle 2.

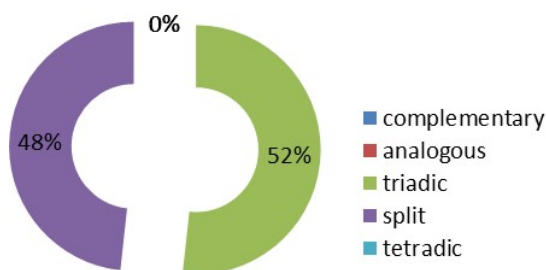


Figure 9. Results of Questionnaire for Display Patterns of Model Teachers in North Kayong Region High Schools in Cycle 2

Split Group

The students' ability to give opinions objectively in the questionnaire given to them has provided a lot of benefits. The most important thing is that students are taught to have the potential to access the parts they like (for example the media the teacher uses) in their learning community (Kalantzis & Cope, 2010). During the implementation of the cycle 2, the elementary schools in Kubu Raya involved different model teachers but the observers involved were still the same as in the first cycle. Cycle 2 was carried out a week after the cycle 1 collaboration process ended. There were 53 students involved in this cycle. Figure 10 illustrates a slide show pattern used by the model teacher.

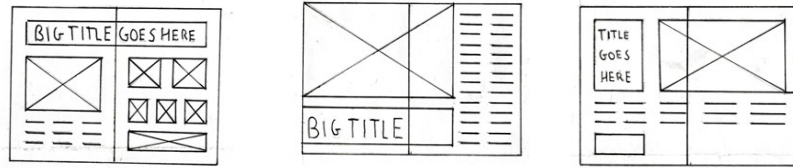


Figure 10. Slide Display Pattern used by Model Teachers at elementary schools in Kubu Raya in Cycle 2

The Split pattern was mostly favored by students in PAUD and elementary school levels. This is because the text is a little, the picture is more dominant or numerous. According to Corey (2019) the split type is a type of slide show pattern that is suitable to be applied to students under 9 years of age. This is because this pattern shows a more dominant image. This is also reinforced by Sadirman (2006) who argued that images are one of the elements that need to be reproduced in slide shows for students in elementary schools, because images, rather than texts, are more favored by students.

In Figure 11, the results of 64 student questionnaires are displayed about the pattern used by model teachers at elementary schools in Kubu Raya in Cycle 2.

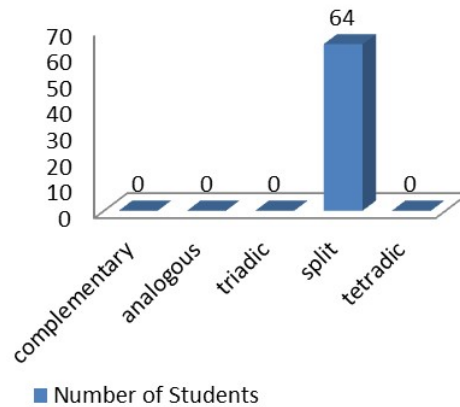


Figure 11. Patterns Used by Model Teachers at SD Kubu Raya in Cycle 2

Based on the results of the questionnaire from 64 students (Figure 10), 100% of the students in the Kubu Raya Elementary Schools who followed the instructional process with a lesson study in cycle 2 chose split group patterns as the most favored compared to other patterns such as complementary, triadic, analogous and tetradic.

Conclusion

The results of questionnaires from 249 students of PAUD and high school levels showed that 1) 63% of students as a whole from PAUD to senior high schools preferred the display pattern of the PowerPoint media in the form of split compared to complementary, analogous, triadic, and tetradic. 2) the tetradic media pattern was favored by PAUD and elementary school students, 3) High school students preferred the analogous display pattern of the media. It is expected that teachers design instructional media in accordance with the characteristics of students they are teaching.

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