

Natural Science Thematic E-Learning Content Development at TK Santo Yoseph Medan

Chatrine Sylvia^{a)}, Angela, and Fandi Halim

Information System Study Program, Universitas Mikroskil, Medan, Indonesia

^{a)}Corresponding Author: chatrine.sylvia@mikroskil.ac.id

Abstract

This community service activity aims to produce learning content that is adapted to the thematic learning concepts applied in TK Santo Yoseph Medan. Learning content that is produced for TK Santo Yoseph Medan is provided in several short videos to elaborate learning materials according to the Natural Science theme. Video is divided into several short videos that are customized to fit children's interests where each content contains colour images, animations, and brief information according to school material. These videos as the results of this community service activity help TK Santo Yoseph Medan on improving the learning services by providing quality content for kindergarten students.

Keywords: Thematic, E-Learning, Learning Content, Short Video, Kindergarten

INTRODUCTION

TK Santo Yoseph Medan is a private kindergarten located at Jln. Palang Merah No. 15 Medan, Medan Maimun, North Sumatra (see figure 1). Since the Covid-19 pandemic begin, all of the learning activities have been carried out through online learning. Kindergarten students are given the freedom to learn independently supported by online direction from teachers and support from parents as companions during the learning process. Learning which is usually carried out on-site with the teacher and friends in the classroom has been replaced by online meetings through video conference media together with the teacher while accompanied by parents. However, the usage of video conferencing alone is not sufficient considering its limited learning time and students' boredom level if they are joining a video conference for a long duration. During video conferencing, teachers should also focus on delivering material optimally thus the delivering learning material target is achieved. Other problems also arise as a result of home learning. The student's attention, especially kindergarten students, when studying at home independently are often distracted and require more parent involvement. This happens because of children's nature, especially kindergarten students who are often distracted and their mood-changing when studying. These is the risks that need to be considered in children's learning, especially for home learning.

Based on this condition, the school needs to provide additional learning support in form of learning content to support students to keep learning and at the same time, will act as supportive tools for parents when accompanying their children to study independently out of video conferencing time. This opportunity then became the attention and intention of TK Santo Yoseph Medan who tries to provide learning content to their students. However, in order to develop learning content requires significant resources both in terms of time and resources as well as teachers' ability. It became an additional burden for teachers because, while preparing learning activities through video conference media, teachers still have to focus on creating learning content. This condition triggers the initiative for the community service team to support TK Santo Yoseph Medan in developing learning content for students based on the curriculum and thematic learning content arranged by TK Santo Yoseph Medan.

Distance learning is learning designed and carried out in another location or outside the classroom. The distance learning process usually does not occur in face-to-face meetings between people who teach and people who learn. This learning emphasizes more on self-study and requires certain techniques in designing the learning materials and content through various

media such as computers, television, radio, telephone, internet, video, and so on (Abidin et al., 2020; Prawiyogi et al., 2020; Sadeghi, 2019; Schneider & Council, 2021; Yuangga & Sunarsi, 2020).

Distance learning aims to meet educational standards by utilizing Information Technology through electronic devices such as mobile phones or gadgets that are interconnected between students and teachers so that through the use of technology, the teaching and learning process can be carried out properly (Pakpahan & Fitriani, 2020).

As previously explained above, distance learning also known as online learning, that has been going on for a long time, and several other challenges have also started to emerge. The challenges such as lack of enthusiasm and interest in kindergarten students as well as limited ability and time of parents for accompanying their children's learning, require the school to start looking for additional alternatives to increase students' learning interest. An alternative needed by the school is to provide learning materials which is not only books and notes that will be read by kindergarten students but also multimedia-based materials such as audio and video related to learning materials and according to the curriculum. This alternative is expected to be able to support parents when they accompany their children in learning in a more interactive and fun way. Though, it is undeniable that the active role of parents, teachers, and kindergarten students is an important factor in online learning although they are using information technology.

However, as previously mentioned, currently, to produce multimedia content as an alternative needed by the school, there are limited time and resources for kindergarten teachers. It happened because teachers also need to focus on preparing the online teaching process carefully to optimize learning quality during video conferencing, thus the limited time gives students more benefits. Considering this situation, the community service team took an initiative by proposing community service activities to assist the school on producing multimedia learning content videos they wish to have.

The videos produced are adapted according to thematic learning concepts provided by the school. Thematic learning is learning to instill the basic concepts of knowledge and the ability to increase knowledge in form of facts. It is also able to provide interesting learning because the theme presented is a theme that is very close to the child, simple, interesting, and incidental according to events that are happening (Davidova, 2020; Resort, 2017; Suryana, 2017; Yuliasri & Ramdhani, 2018). This method is based on integrating and using a variety of information to study a topic (Setiawan, 2019).

The benefits of thematic learning are as follows (Brogdon, 2019):

1. Children learn better when experiencing knowledge or experimenting directly: they begin to see relationships and connections across time, place, and discipline;
2. Thematically teaching/learning helps children build self-confidence and enables them to understand what is being taught;
3. Content and subjects are integrated with each other and not explained subjects in detail, thus children can learn and retain more information through a thematic approach, encouraging the involvement of all children's abilities through topics relevant to them and their learning needs. From learning aspects, children are able to connect real-world experiences and build on their knowledge learned from previous lessons;
4. Thematic learning keeps children engaged by making learning fun through different experiences. Teachers and children can be creative, authentic, and original which also enables teachers to integrate all subjects and use literacy in these subjects.

Early childhood learning must be able to provide opportunities for children to get a scientific learning process. This will have an impact on their thinking ability and insight when they continue their education to a higher level. The scientific process can be done by a scientific approach. The process of children in gaining knowledge through the process of observing, asking, trying, reasoning, and communicating (Suryana, 2017).

The learning content videos developed are several short videos containing material according to the "Natural Science" theme and related to textbooks provided by TK Santo Yoseph Medan. For this community service activity, the team uses materials related to the

thematic "Natural Science" provided by school which is then combined with interesting pictures and animations related to the material that is being produced. After whole components needed to make videos are available, the creation of learning content in the form of short videos begins. The community service team then divide the material into several short videos with a duration of around 2-3 minutes per video. The video's duration produced duration of around 2-3 minutes is aimed to let the student understand easier and prevent boredom for them. Each video was produced and then delivered to TK Santo Yoseph Medan to be verified by the school principal. The approved short videos are then used as alternative supporting materials and additional material provided by the school to support the student to overcome the limitations of online learning which relies solely on video conferencing. Obviously, each video produced will be adjusted considering the audience is kindergarten children. Each video content, either for its content, images, and animations used is chosen in such a way that it can attract children's attention and increase their interest to learn more comfortably.

Alongside the production of this learning content video, it is expected that it may support kindergarten students to understand the lessons which were usually delivered directly by the teacher via video conference. The learning content videos produced contain text but also pictures or animations and explanations explaining each content shown in the video. This is supposed to stimulate understanding from kindergarten students during the pandemic. The usage of technology in learning is believed to increase student enthusiasm in the learning process in a more pleasant atmosphere.

METHOD

The following are stages that have been carried out in this community service activity:

1. Gathering materials related to the "Natural Science" theme
The materials collected are related to the "Natural Science" theme and are being adjusted to the textbooks used by the school. The team also utilizes books related to thematic learning provided by TK Santo Yoseph Medan. Other additional material gathered, naturally, is adjusted to the age of kindergarten students who are still in their early age.
2. Develop learning materials
The material collected then being compiled and organized so that it becomes several small topics. The activity then continued by searching for images and animations which are matched each small topic discussed. While looking for suitable resources, the team also prepares a storyline draft for each video that will be produced.
3. Develop learning content videos
Based on the pictures, animations, and storyline draft, the activity was then carried out with a focus on adjusting to the learning materials determined by the school. Videos then being produced by compiling the whole resource collected and then subbed with explanations audio and background music which is suitable for children. Videos duration was adjusted to around 2-3 minutes. Tools for compiling the videos, together with explanation audio and background music including the video rendering process utilizes Renderforest as the online animation video maker platform.
4. Learning content videos verification by the principal
The finished video is then delivered to the school principal to be verified and confirmed to the school curriculum. Subsequently, the team will alter the video contents on the video based on a request from the school principal if there are parts that are not suitable or if there are additional requests from the school principal.
5. Prepare Activity Report
Later on, the activity is continued with community service final report preparation. This final report is served as evidence report of community service activities that have been carried out by the team as well as evidence of the team's responsibility.

RESULTS AND DISCUSSION

To recognize the problems met by the school, the team do visitation with partners to further discuss and discover difficulties encountered by the school. Results of the discussion afterward lead the team to have the initiative to assist the school in developing learning content videos that were adapted from textbooks used by TK Santo Yoseph School in Medan. The difficulties encountered by the teachers of this school are the lack of experience in producing learning content videos. They also have limited time to make supporting videos as additional material for their students, considering that during the pandemic time, they were also busy making learning materials that could be accessed online by the student.

As initial preparation for developing learning content videos, the team gather materials related to the "Natural Science" theme. The team also utilized textbooks used by the school as a reference and also looked for resources related to the theme from other sources whether in form of explanations or animated pictures to suit the needs of a student whose age of kindergarten and is still classified as early age.

The materials that have been collected are then assembled into several small topics while collecting images or animations that are in accordance with and suit the topics that will be created. The theme of "Natural Science" is then divided into 5 small topics including Heavenly Bodies, Contents of the Universe, Natural Phenomena, Water and Air, and Fire. Each of these five topics has subtopics that are equipped with audio and text explanations and animations to support the explanations. The team then makes a storyboard draft according to the small topic which has been prepared previously to facilitate the development of learning content videos (see figure 2).

The next step then began by developing learning content videos through the utilization of the Renderforest.com platform. Renderforest.com is an online tool for creating high-quality videos, logos, graphics, mockups, and websites with minimal time and effort. Renderforest.com provides various video templates that users can adopt to create their own videos. The activity is done by arranging the learning content videos according to learning materials that have been divided into 5 small topics and adjusted to the storyboard draft. The activity also includes combining images and audio that are suitable for children. The videos are designed for a short duration considering that most children are easily distracted, and it is very difficult to keep children's focus on something for a long duration.

To start making learning content videos, users can access the Renderforest page (<https://www.renderforest.com>). Afterward, the user needs to log in to be able to start making videos. Renderforest provides ready-made templates that users may choose according to their needs. In each template, there are several scenes that can be used in making videos (see figure 3).

When choosing a template, it should be adjusted to the kind of video the user wants to make any number of scenes available in the template. The more the number of scenes available, the more diverse the scenes that can be selected and used when creating video content. After choosing a template, the video is made by selecting the scene provided by Renderforest. The available scenes are divided into several categories where there are scenes in the form of videos and images. When selecting a scene, users also need to pay attention to the number of text characters and the duration of the selected scene. This will affect the explanation which will be included in the scene and the duration of each scene when inserting audio. If the available scene does not match the user's wishes, then the user can switch to the Stock Footage Menu. Stock Footage is a form of video that can be used freely.

The selected scene can then be edited as needed and depending on the type of scene selected. The display of each scene is divided into four parts, namely Edit, Style, Music, and Preview. In the Edit section, users can make edits to the contents of the scene. There are scenes that only allow editing of text, but there are also scenes that allow users to enter images and text at the same time. In certain scenes, the user can even enter more than one image at a time. Images that are included in the scene can be resized (Zoom in/Zoom out) as well as image settings to fill one screen or adjusted to the size of the image. The length of the entered text also

depends on the pre-selected scene. Users can also change the duration of a scene according to the user's wishes. To add the next scene, the user can select the green plus button at the bottom of the scene. If there is a scene, that which you want to change the placement order, the user can drag and drop on the scene that the user wants to move.

In the Style section, there are four setting options, namely Look, Transition, Font, and Text Style. The Look option allows the user to select the shape and colour of the scene display. The Transition option allows the user to make transitions in each scene. The Font option allows the user to select the font type and the Text Style option allows the user to select the type of text based on the available text styles.

The next section is Music. In this section, users can select and enter music that will embed each scene available. Renderforest provides a variety of sample music that users can freely use. However, users are also allowed to upload their own music by selecting the Upload button. The music provided by Renderforest is also divided into several categories, where each music can be played for users to listen to. In addition to music, users can also enter voiceover, which is the voice recorded by the user as the main audio of the video content created. There are also volume settings for music and voiceover so users can adjust the volume.

Voiceovers are entered scene-by-scene so that the user can arrange for explanatory audio recordings to be divided according to the scene being displayed. Renderforest provides a Record feature, so users can directly record audio explanations on the Renderforest page. If the user is recording on another application, then Renderforest also provides the Upload feature to upload audio recordings from other applications. Users can set whether to include the entire audio recording or trim the recorded audio. Setting the length of the audio recording will affect the duration of the scene. Users can also set the duration of the scene manually, but it will depend on the template settings because there are some scenes that can't be changed at all. Therefore, it takes accuracy when choosing the scene, you want to use (see figure 4).

The last part is Preview, where users can choose the export video option that has been made previously. There are three options, namely Low Quality, High Quality, and Amateur Subscription. The Low-Quality option is an option to export videos for free with the lowest quality and has a watermark on the video. While the other two options are paid options.

Learning content videos are made in two languages including Indonesian and English. Video content in Indonesian contains animations and explanations in Indonesian while the English video content contains English pronunciation learning with content and animation that is still in accordance with the Indonesian language video content (see figure 5).

CONCLUSIONS AND RECOMMENDATIONS

During a pandemic time currently, it is necessary to make adjustments in various ways, including learning activities. Learning materials should be provided in the form of videos and audio-visuals that are also adapted to the age of the audience. The result of this service activity is a learning content video that is adapted to thematic learning and is available in both Indonesian and English. A total of 12 videos were made. This learning content video is complement and supports learning materials intended for kindergarten students. The suggestions that can be given are, that in the future, kindergarten teachers can be given training so that they can develop their own creative learning content videos.

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APPENDIX



Figure 1. Overview of TK Santo Yoseph Medan

TOPIK: BENDA LANGIT












Scene 1	Scene 2: Benda Langit	Scene 3: Bumi	Scene 4: Langit
Opening Video	 Benda langit ada yang dapat kita lihat secara langsung dan ada yang tidak dapat kita lihat.	 Bumi merupakan planet tempat kita tinggal.	 Di pagi dan siang hari, akan terlihat cahaya matahari. Sementara di malam hari akan terlihat bulan dan bintang.
 Matahari digolongkan sebagai bintang sehingga memancarkan cahayanya sendiri. Bumi bergerak mengelilingi bumi yang kita sebut revolusi bumi.	 Bulan bergerak mengelilingi bumi yang disebut revolusi bulan. Bulan merupakan satelit alami bumi.	 Bintang merupakan benda langit yang memancarkan cahayanya sendiri di malam hari.	 Pelangi merupakan kondisi bertemunya matahari dan air hujan sehingga membentuk busur cahaya tujuh warna.
 Awan merupakan sekumpulan tetesan air atau es yang berbentuk seperti kapas di langit.	 Kadang-kadang hujan disertai dengan petir sehingga perlu berteduh dan menghindari tempat terbuka.	 Untuk melihat benda langit, dibutuhkan alat yang disebut teleskop.	 Astronot adalah orang yang menjelajah ruang angkasa dan menemukan benda-benda langit lainnya.
Scene 13 Nasehat bagi anak-anak	Scene 14 Closing Video		

Figure 2. Storyboard



Figure 3. Available template in Renderforest

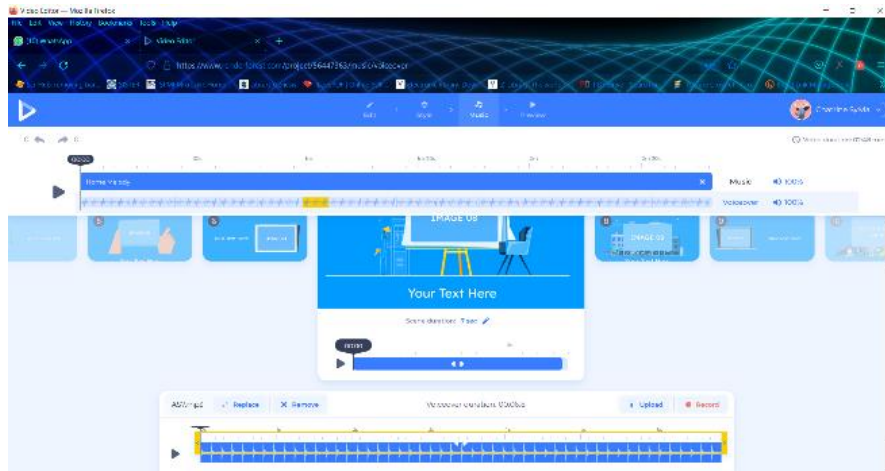


Figure 4. Overview for Music – Voiceover



Figure 5. Content Videos in Indonesian and English