



Using the Song Maker Feature on Chrome Music Lab as a Music Learning Media

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Abstract: This study aims to reveal how to use the Song Maker feature in Chrome Music Lab as a medium that can be used in remote music learning. Data collection was taken from reference books and journals, as well as YouTube and Google applications. The research method used was Research and Development (R&D) with the Waterfall development model. The resulting product is in the form of a learning video that contains an introduction to Chrome Music Lab and the Song Maker feature, how to access and the process of making songs in the Song Maker feature. The results of the development of the Song Maker feature in Chrome Music Lab show that the feature is very easy, useful, and fun to use as learning media. The test results show that the product is ready to use because the respondents are satisfied. Chrome's Music Lab, specifically the Song Maker feature, provides an alternative for educators to extrapolate music education barriers by connecting active methods with technological, digital experiences for distance learning. The implication of the finding is using the Song Maker feature of Chrome Music Lab as a media for learning music can be used in the classroom for music creation lessons.

Keywords: chrome music lab, song maker, music learning media

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INTRODUCTION

The Covid-19 pandemic which continues to spread in Indonesia has prompted the government to implement policies work from home (work from home) and study from home for a while. Ministry of Education and Culture via the circular explains that in response to the increasing spread of Covid-19 are encouraged to carry out learning from home via distance learning (Sati et al., 2022). Likewise in the field of education which makes Distance Learning or what called distance learning takes place. After recently moving from the pandemic to normal times as usual, distance learning is still an alternative for teachers and schools in both formal and non-formal education to carry out teaching and learning activities. This distance learning is very helpful for continuing the interaction between teachers and students to continue carrying out learning even though only through cyberspace. Utilization of technology can maximize distance learning. This collection of technological resources uses cyberspace to make teaching and learning more dynamic, personal, and active, delivering content interactively between "doers of the educational process". In addition, the amount of teaching time can be reduced, the quality of student learning can be improved and learning can be done anywhere and anytime, student learning attitudes can be improved, and teachers and students can hold discussions via the internet which can be followed by a large number of participants, thus increasing knowledge. and broader insights (Mishra, 2021; Meiliyanthi et al., 2022; Sagita & Nisa, 2019). In this case, of course, creative ideas must emerge for both teachers and students to achieve learning objectives such as when learning in class.

Distance learning means learning that is carried out in different places, both teachers as instructors and students as learners using electronic media such as laptops, cellphones, iPads, tablets, and the like, communicating anywhere and anytime to reduce boredom to make the learning process more enjoyable. learning to teach more effectively (Mujahidin et al., 2021, Parlindungan et al., 2020, Pratiwi et al., 2016). With the implementation of distance learning, teachers and students must master digital skills to be able to use these various media. In addition, teachers and students communicate with each other and share information using applications such as Zoom, Google Classroom, Google Meet, WhatsApp, and so on. Through this application, teachers can provide learning materials so that the learning process can be carried out even if only online with students. besides that, teachers think more about ideas and innovations that can be used for learning media that are appropriate to how distance learning takes place.

In providing learning material, the teacher prepares learning media that must be packaged as attractively as possible so that students can comfortably understand it that it is hoped that it can enhance the quality of the learning process which in turn can affect the quality of student learning outcomes (Purwanto et al., 2019; Rusdewanti & Gafur, 2014; Setyawan, 2017). Learning media is a learning resource to convey or distribute messages, materials, and information provided by the teacher to students in a planned and innovative manner, to create a conducive learning environment where the recipient can carry out the learning process effectively, actively, creatively, efficiently, and fun. The learning media can be in the form of PowerPoint

presentations, Canva, Prezi, learning videos, or voice recordings regarding the explanation of the material. Teachers must be good at operating applications, creative, initiative, and innovative in creating interesting and varied learning (Roffiq et al., 2017). That way, students are still enthusiastic about learning and enthusiastic as usual in face-to-face learning (Morjani & Kurniawan, 2016). Moreover, if the learning media is wrapped with the principle of playing, it will be easier to create fun learning but also remain effective. As in learning art, especially music.

Many music-learning media can be used today, one of which is Chrome Music Lab. Chrome Music Lab is a site that makes learning music more affordable and fun through experiments, exploring the basics of music, where we can play with sounds, rhythms, melodies, and much more. As an alternative to music learning media, Chrome Music Lab creates learning with easy and fun access and only requires an internet network connection. Chrome Music Lab was created using the Web Audio API. The open nature of the Web Audio API allows Google to program Chrome Music Lab in an open-source manner so that eventually outside developers can also experiment with it. The Web Audio API introduces native audio processing to web browsers that allows people to remotely collaborate on the composition and performance of music pieces (Favory & Serra, 2019; Jillings et al., 2017). Creating music in a web browser makes it easier to share entire compositions, such as Chrome Music Lab with the Song Maker feature, which aims to make learning music more accessible and fun, simple but intuitive melodies, save their own musical ideas, and then come back to them for repair (Favory & Serra, 2019; Homone, 2019). Some of the conveniences of using Chrome Music Lab can be used by all ages with any Gadget (phone, iPad, Tablet, Laptop, Computer), can be reached in a web browser so you don't need to download applications, and don't drain memory/RAM and can use low-spec cellphones. In addition, the audio results are stored as links (can be shared on FB/Twitter) and can also be downloaded in MIDI and WAV formats.

Unfortunately, in Indonesia itself, it is still rare to use the Chrome Music Lab application to learn music, especially at school. This is evidenced by the lack of information about Chrome Music Lab in the form of books, articles, or on Google information sites. In fact, in America itself, it has often been used in various schools, especially in early childhood education and elementary schools. That's why on Youtube there are only tutorials or learning videos for Chrome Music Lab in English. Learning videos in English are great for sharpening your English skills. However, it would be nice if the learning videos were also available in Indonesian to make it easier and faster to understand what was being conveyed. Therefore, the researcher wants to investigate and examine the use of Chrome Music Lab as a music learning medium by designing and making learning videos introducing features and how to operate one of the features of Chrome Music Lab, namely Song Maker. That way, this article can be used as a reference for further research. Chrome Music Lab, developed by Google platform Chrome Experiments is one of a variety of digital tools, accessed via an internet browser, without the need for a link, and free of charge. Chrome Music Lab is a free platform that enables practical and easy music learning to have fun through music play and composition tools (Cunha, 2022). According to the official page, the tool aims to make "learning music more accessible through fun and practical experiments" (our translation) and mentions the use by teachers in the classroom to "explore music and its relationship" to science, math, art, and more. Chrome Music Lab aims to embody a conceptual approach and develop musical skills through playing in a friendly manner. The features available are Shared Piano, Song Maker, Rhythm, Spectrogram, Sound Waves, Arpeggio, Kandinsky, Voice Spinner, Harmonics, Piano Roll, Oscillators, Strings, Melody Maker and Chords. These features serve as a tool for learning the basics of music.

Shared Piano allows to share a room in real-time via a link for up to ten participants, who interact with a digital piano, whose voice responses are visualized on the piano rolls at the top of the screen; *Song Maker* has a grid feature for creating music or songs with two digital instruments, namely melodic and rhythmic instruments; *Rhythm*, the lower section contains a grid in which up to three symbols are inserted which will have a sound response with three percussion instrument samples; *Spectrogram*, providing a graphical representation of sound intensity, frequency range, and timing of various sounds, interacting with a mouse or microphone; *Sound Wave*, featuring, at the top, dots representing air molecules and, at the top and bottom, a digital piano. Interact with the piano via the mouse, the moving dots represent the movement of air molecules in sound events; *Arpeggios*, providing encoded representations of major and minor chords, the upper section displays graphical representations with the mouse possible to change, in addition to sampler and tempo models, chords and arpeggios; *Kandinsky*, allows you to generate images that will produce a response sound; *Voice Spinner*, it is possible to record an audio track and change the direction and speed of its playback by modifying the recording height; *Harmonics*, showing, via graphic representation, the harmonic range from the fundamental voice to the fifth harmonic; *Piano Roll*, featuring a piano roll with five possible soundtracks to change the sampler and create sounds with a microphone to reproduce in five songs; *Oscillator*, it is possible to visualize four sound waveforms and change the wave type and frequency with the mouse; *Strings*, lets you hear how stringed instruments behave, the length of the strings, and their relationship to the harmonic series; *Melody Maker*, allows you to create melodies through a grid that rotates in a circle, can change the tempo and create harmonic variations using the "mirroring" option; *Chords*, major and minor triads are observed, it is possible to change

the chord mode, between major and minor, and, a digital piano key is selected which will sound accompanied by a representation of the chord in its ground state (Luiz et al., 2022).

In this study, researchers will only discuss in detail the use of the Song Maker feature in Chrome Music Lab which is packaged in the form of a learning video. Song Maker is used to create songs, using the basics and aesthetics of sequencing. Song maker allows you to create music through melodic and rhythmic sequencers and provides greater autonomy in music creation (Barrales & Alfaro, 2021). It has two distinct zones that can change the respective instrument: melodic instruments (marimba, piano, strings, woodwind, or synth) and rhythmic instruments (electronic, block, kit, or conga). In this feature, you can enter musical notes into the grid space at the top and a rhythm pattern of up to two voices at the bottom. You can also set the tempo, measure, scale, and so on according to what you want. Interaction occurs via mouse, computer keyboard, and microphone, and can be saved via links, HTML code, MIDI files, and WAV files. Despite its very simple design, the Song Maker feature is very useful for basic music lessons, namely beats, rhythms, notations, and melodies.

In Music Education, some of the possibilities for rehearsal and instrumental composition include the use of applications and virtual environments, where students will have the opportunity to review, practice, improve, and interact with content while developing their digital skills to record, create, and express themselves artistically (Lima da Silveira, 2020). The use of Chrome Music Lab for music learning in primary and secondary education occurs to categorize the various possibilities presented by the software and what needs it can fulfill, assist in the assimilation of musical concepts, in addition to having applications for music experimentation and creative development. So, in this context, it is legal for teachers to adapt the various available digital tools, in particular Chrome Music Lab, because it offers educators the possibility to extrapolate barriers to music education, connecting with active methods and with technology, digital experiences, and students' music. Both teachers and students will form an integral individual, developing talents and skills such as creativity or analytical thinking. The teacher will experiment first, so later it is taught to students to be able to experiment as well. Also, creative thinking in music and exploring music can be accomplished in many ways and is a valuable area of student musical development (Cuadrado, 2019; Menard, 2015).

METHODS

Research and Development (R&D) is often interpreted as a process or steps to develop new products or improve existing products to realize certain products and test their effectiveness (Aribowo & Usman, 2021; Hanafi, 2017). Research and Development in the field of education is a research design that aims for industry-based are used to design new products or procedures for improving the quality of education through a field test process to find effectiveness and standardization that has been established academically and empirically. Research methods are used to produce certain products and test the effectiveness of these products (Rabiah, 2015). Therefore, in this study, the researchers used an existing website, namely Chrome Music Lab, to create a learning media product that was tested on high school students. This study used the Waterfall development model. A waterfall model is a classic approach to software development that describes a linear and sequential development method. It consists of five to seven phases, each phase is defined by different tasks and objectives, in which the whole phase describes the software life cycle to its delivery. Once the phase is complete, the next development step follows, and the results from the previous phase flow into the next phase.

The Waterfall Development Model is one of the models of SDLC or Software Development Life Cycle; that is the process of developing or changing a software system by using or changing a software system by using the models and methodologies that people use to develop software systems, and also information systems development models systematic and sequential (Hasanah & Untari., 2020; Sasmito et al., 2017) The following are the stages of the Waterfall development model: *Analysis*, collecting complete requirements then analyzed and defined needs that must be met by the program to be built. This phase must be done in full to produce a complete design; *Design*, in this stage the developer will produce an overall system and determine the software flow to detailed algorithms; *Implementation*, this stage is where the entire design is converted into program code. The resulting program code is still in the form of modules that will be integrated into a complete system; *Testing*, at this stage, the modules that have been made are combined and this test is carried out to find out whether the software made is following the design and the functions of the software have errors or not; *Deployment*, the client or user tests whether the system complies with the approved one; *Maintenance*, system installation and repair process as approved. This research was carried out at one of the high schools in Palopo City. This school is one of the leading schools in South Sulawesi which has achieved many achievements in the arts, especially music, upholds science and technology in terms of the school's vision and mission, and on average its students already have gadgets. This school is also a place for researchers to train vocal groups and its students are widely used in various other studies because their thinking and understanding abilities are very high. Researchers also examined the school where the resource person taught as supporting data for the research.

The participants in this research were 30 students consisting of 11 class X students and 19 class XI

students. The researcher chose these participants because they were adapted to the learning material for musical creation in the syllabus for classes X and XI. The data collection technique uses a questionnaire containing a questionnaire with 15 questions. Answers obtained through questionnaires or checklists are added up or grouped according to the form of the instrument used. The questionnaire given to the experts was equipped with five answer choices, namely 1 = No, 2 = Not enough, 3 = Fair, 4 = Satisfied, and 5 = Very Satisfied. After being given a questionnaire to assess the learning video using the Song Maker feature in Chrome Music Lab as a music learning medium, the researcher carried out quantitative data analysis, namely calculating the average variable score to determine the interpretation table group of the percentage of student satisfaction responses. The resulting product begins with research or product knowledge. The essence of research was the acquisition of initial data/information, a description of product potential to be planned, and then analyzed. (Winaryati et al., 2021) The product produced in this research was a music learning video that contained an introduction and tutorial on how to use the Song Maker feature in the Chrome Music Lab software to produce a song or musical composition. Accessing Chrome Music Lab requires a web browser helper software.

Introductory learning videos and tutorials or how to use the Song Maker feature on the Chrome Music Lab software as a music learning media is a medium that makes it easier for people to learn about musical composition, namely producing a musical work with features, musical instruments, sheets (a place to pour notation with desired melody and rhythm) simply. This media puts forward the appearance and design as well as simple colors but is still educational, especially in learning music composition, complete practical tutorials with explanations so that it will greatly support the learning of each individual who uses it. Data collection from this media referred to several reference books and journals, as well as deepening applications from several sources such as YouTube and Google. This learning media can be produced well in materials, explanations, and practices that can be operated personally. The main target of using this learning media is middle and high school students. In general, regardless of age, as long as they want to learn, they can use this learning media. However, for the practice of education, especially at the school level, those that match the curriculum are junior and senior high school students. This is because the Song Maker feature in the Chrome Music Lab software trains middle and high school students to become composers from an early age who utilize the gadgets they usually have. In addition, the author explores the learning syllabus of junior high and high school students which has learning materials such as live music group performances through electronic media, identifying various musical instruments in musical performances through audio/audiovisual media, own music performances, self-made musical performances, etc.

Testing is an activity in which a system is executed under specified conditions and the results are observed and evaluated (Kurniawan & Prasetya, 2017). Testing was done by testing the main functions contained in the device products that had been developed. The main functions referred to here were represented by modules that had been defined in the analysis stage. The hardware environment used to perform this test is the same as the implementation environment. In this study, testing was carried out using the Preference and Satisfaction Testing method, namely asking respondents to use the product within a certain time and then answering questions related to their preferences and satisfaction. In this study, the respondents were 30 students of Senior High School. The questionnaire instrument for respondents or users used a questionnaire with an interval score of 1 to 5 and was used for the usability aspect (Purwanto et al., 2019).

RESULT AND DISCUSSION

To access the Song Maker feature in Chrome Music Lab, you can do the following steps: 1.) Go to a web browser, such as Google Chrome, Mozilla Firefox, and others. 2.) Type the keywords Chrome Music Lab or click the link <https://musiclab.chromeexperiments.com/>. 3.) The Chrome Music Lab interface will appear. 4.) Then, click the Song Maker feature or icon.

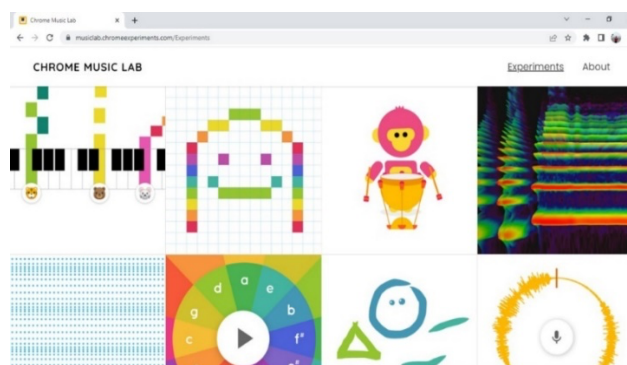


Figure 1. Chrome Music Lab Appearance

Introduction to Icons and Functions in Song Maker

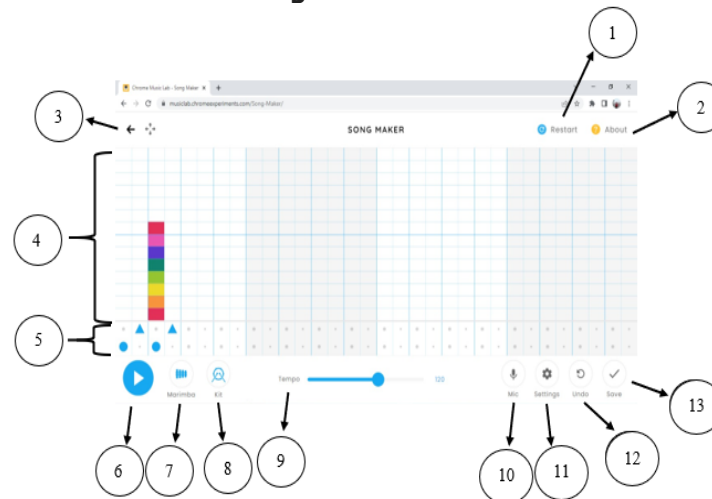


Figure 2. Icon on Song Maker

1. *Restart*, restart song work. This can remove everything that has been worked on to start over from scratch.
2. *About*, informs you about how to use the Song Maker feature.
3. *The arrow*, returns to the previous page, the various features available in Chrome Music Lab.
4. *Melody Sheet*, sheet, or place to fill in the notes of a melodic instrument. On this sheet each note is distinguished by its color, including: Do = Red, Re = Orange, Mi = Yellow, Fa = Light Green, Sol = Dark Green, La = Blue, Si = Purple.
5. *Rhythm Sheet*, sheet, or place to fill in the notes of a rhythmic instrument. On this sheet, the circle symbol produces a low sound. As for the triangle symbol, it produces a high sound. The difference is only one octave.
6. *Play*, play the created song. Each step in the work that has been made will be sounded.
7. *Melody Instruments*, musical instrument or melodic instrument (marimba, piano, strings, woodwind or synth)
8. *Rhythm Instrument*, musical instrument, or rhythmic instrument (electronic, blocks, kit, or conga).
9. *Tempo* is the duration of the song's speed.
10. *Mic* detects and records sound to further find the tone on the Melody Sheet.
11. *Settings*, adjust some musical structure as desired.
 - a. Length, total bar, or bar. Maximum 16 bars.
 - b. Beats per bar beats per bar. Maximum 7 taps.
 - c. Split beats into, split beats. Maximum of 4 dividers.
 - d. The scale consists of major, pentatonic, and chromatic.
 - e. Start on, notation starts from low (low), middle (middle), high (high) with notes C, C#/Db, D, D#/Eb, E, F, F#/Gb, G, G#/Ab, A, A#/Bb, or B.
 - f. Range, the total range of tones. Maximum 3 octaves.
12. *Undo*, undo what was done before.
13. *Save*, save the work or songs that have been made.

Song Making Process

To make a song, the first thing to do is set Settings. Arranged musical structures are the simplest and most often found. Set the tempo to 59, the rhythmic instrument is Kit and the melodic instrument is String. After that, make a beat or the rhythmic pattern as desired on the Rhythm Sheet. Finally, fill in the grid features on the melody sheet as desired. An example of the result of making a song can be seen as follows:

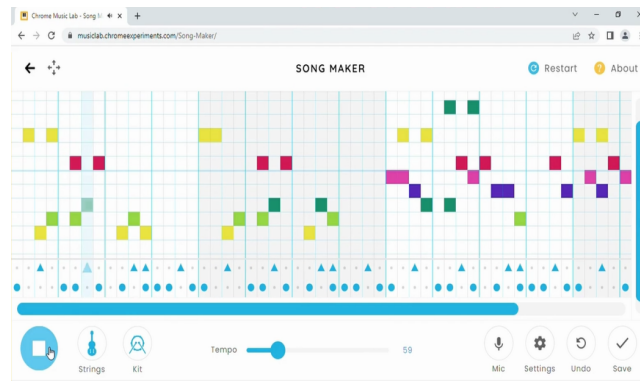


Figure 3. Song Results

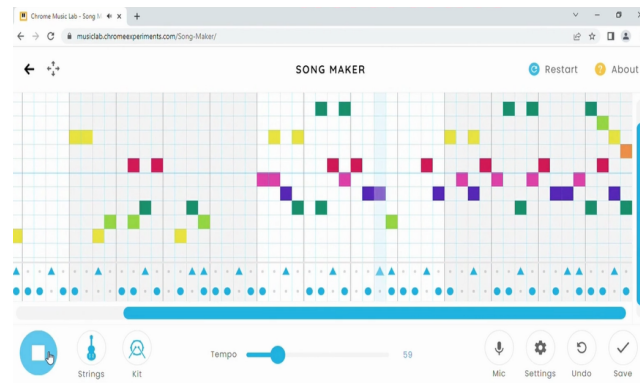


Figure 4. Continued Song Results

When finished, the result of the song that has been done can be saved by clicking the Save icon in the form of a link, MIDI, or WAV. To test the product, the researcher uses the method of Preference Testing and Satisfaction Testing (Preference and Satisfaction) by distributing a Google Form containing 15 questions about a video learning how to use Song Maker in Chrome Music Lab. The results of product trials can be formulated as follows:

Student Questionnaire Analysis

To analyze the results of the questionnaire using the percentage of the number of students who have chosen each alternative answer by dividing the frequency by the number of respondents multiplied by 100 percent (Setyawan, 2017). The interpretation of the percentage of student satisfaction responses is as shown in the following table:

Table 1. Interpretation of the percentage of student satisfaction responses

Percentage	Category
0% - 20%	Not satisfied
21% - 40%	Less satisfied
41% - 60%	Quite satisfied
61% - 80%	Satisfied
81% - 100%	Very satisfied

After giving a questionnaire consisting of 15 questions with a range of 1-5 regarding learning videos on how to use Song Maker in the Chrome Music Lab to 30 students of Senior High School, the results of the trial are as follows:

Table 2. Product Trial Results

Question	Total Assessment Score By 30 Students of Senior High School
Overall, I am satisfied with the ease of using this Song Maker Chrome Music Lab	116
How to use Song Maker Chrome Music Lab is simple	121

I can learn effectively, efficiently, and quickly by using this Song Maker Chrome Music Lab	120
I feel comfortable and easy to use this Song Maker Chrome Music Lab	120
I believe I am more productive by using this Song Maker Chrome Music Lab	115
This learning video tells me how to run Song Maker Chrome Music Lab	123
Whenever I make a mistake, I recover easily and quickly	114
This feature provided by Song Maker Chrome Music Lab is clear	121
The explanation of this learning video is clear	133
Song Maker Chrome Music Lab this is effective in helping me study especially in learning music composition	129
This Chrome Music Lab Song Maker display and learning video is fun	126
Song Maker Chrome Music Lab has all the functions and capabilities I need	121
Learning video tutorials at each step are explained in detail and easy to understand	125
Song Maker Chrome Music Lab This is very possible to be used as a learning medium, especially in music subjects	123
Overall, I'm satisfied with Song Maker Chrome Music Lab and this learning video	125
Total Score Rating	1832

Then, it can be formulated that:

F = Number of respondents' answers = 1832

N = Number of respondents = 30

$P = F/N \times 100\%$

$P = 1832/30 \times 100\% = 61.1\% = \text{Satisfied}$

With the results of 61.1%, it can be concluded that 30 students of SMA Negeri 3 Palopo are satisfied with the Song Maker feature in Chrome Music Lab and the presented learning videos to create songs or musical compositions. Some of the sections lead students to create their own melodic lines, involving sense-activated rhythms. The learning objectives include composing melodic lines and using the Chrome Music Lab (Homone, 2019). For high school students, with mature intellectuals, imagination, and creative ideas, this Song Maker feature is very good as a basis for them to become early composers. The Song Maker feature is especially useful for Basic Music Theory material. Students can explore freely and sometimes the data finds something that the teacher doesn't find. However, this is not meant to be limiting, of course in music there are certain structured criteria. In addition, because there are audio and visuals, teachers no longer rely on books as visuals or recordings as audio. Chrome Music Lab has both audio and visuals. So, students more easily understand. The downside is that Chrome Music Lab hasn't gone into the detail to create complex works.

Students are very enthusiastic and excited to know that there is a Chrome Music Lab. They feel exciting, and fun and like the many surprises that are served. That means agreeing with the results of this study that in the Music Education unit and the web-based composition task, participants' self-efficacy beliefs are demonstrably enhanced across a range of music-making activities (Harris & Carroll, 2020). Especially for the Song Maker feature, the average student who likes it is a student who already has the basics and their curiosity is very high, so they always want to use it. This proves their very high interest in learning about Chrome Music Lab's Song Maker feature. On the other hand, of course, some students have no background in music, who will be a little confused and difficult to understand. That is the reason, there are still some students who give low marks when filling out the cake given. However, according to Akihiko Nakamura the idea of "nothing left behind" allows children of all ages to create creative music (Nakamura et al., 2022). And also This is where the teacher's role is to motivate and encourage students to make them want to learn even more even though it is difficult for them, and in the end, students will feel happy learning. On the other hand, student creativity will form by itself. Online music learning should choose content that fits any time and constraint that may arise. Teachers understand student readiness and must take learning stress into account through student device screens and there are active activities and manage short content that is easy to understand. Therefore, a teaching method

is needed different, not just a change in the learning environment (Thiraphong, 2021).

Providing material with video-based media is effective in the learning process. Students' perceptions of technology integration in the classroom, especially internet-based video technology, are positive. Teachers can also be more creative and innovative in learning because the material can be explained in the video and learning is conveyed (Parlindungan et al., 2020; Rahmaturrizki & Sukmayadi, 2021). Through learning video products by utilizing the Chrome Music Lab website, this Song Maker feature and positive student responses are expected to trigger school teachers to implement the process of learning the art of music, especially in high school. This is because the results of this study prove its effectiveness as a medium for distance learning music. However, it does not rule out the possibility of using the Chrome Music Lab website, the Song Maker feature for this learning media, which can also be done in face-to-face learning..

CONCLUSION

The results of the development of the Song Maker feature in Chrome Music Lab show that the feature is very easy, useful,, and fun. Through a learning video that presents how to use the Song Maker feature in the Chrome Music Lab, educators can use it as a learning medium to teach students and students who want to learn independently. The test results show that the product is ready for use. This is evidenced by the results of product testing on 30 students of Senior High School who are satisfied with using the Song Maker feature in the Chrome Music Lab and learning videos that are presented to make songs or music compositions. However, to find out the usefulness of the product, extensive trials are needed.

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