

ABS 163

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27

28 **Introduction**

29 Indonesia announced the first positive case of Covid 19 on Monday, March 2nd, 2020,
30 which was transmitted through human-to-human transmission (Covid-19 Response Acceleration
31 Task Force, 2020). This has prompted the Government to take quick action to overcome this
32 problem, one of which is by imposing physical distancing and limiting community activities in
33 all areas of life including education. Since the existence of Covid 19, educational activities at
34 school/campus/informal institution have been closed. This is because this place is very risky to
35 spread the Covid 19, reminding that the activities in it must involve a large amount of human
36 interaction. However, it does not mean that educational activities are completely off.

37 Working or studying from home schemes are not new in the world of education. The
38 Universitas Terbuka (UT) is one of the witnesses and living proof of education actors
39 implemented this scheme (known as Distance Education/PJJ) since September 4th 1984
40 (<https://ut.ac.id/sejarah-ut>, accessed September 12th 2020). Learning activities are carried out in
41 online way, involving the use of learning media in the form of modules, audio, video, computers,
42 internet, radio broadcasts, TV broadcasts, and others (<https://ut.ac.id/sistem-pembelajaran>,
43 accessed September 12th 2020). This can be used as an example for other education
44 implementers (ranging from primary education to higher education) to continue to carry out
45 learning activities during the pandemic. Implementers of education in tertiary institutions carry
46 out various learning innovations in lecture activities so that interactions are maintained and
47 educational goals can still be achieved even during the pandemic, including by using the
48 WhatsApp and YouTube application media in the lecture process.

49 WhatsApp is an online-based platform of social media application designed to make it
50 easier for its users (education implementers) to communicate through various available features

51 (Abdulhak and Darmawan, 2017). In addition, WhatsApp allows users to communicate without
52 spending a lot of money, and can be operated with unstable network conditions (Pranajaya &
53 Wicaksono, 2017). WhatsApp has several powerful and easy-to-understand features to operate in
54 lectures. One of them is the chat group feature, which allows groups of students who program
55 certain courses to communicate/discuss related lectures (Khusaini, Suyudi, Winarto, Sugiyanto,
56 2017).

57 Beside WhatsApp, the YouTube application is also an alternative learning media for
58 universities in their lecture activities. YouTube's reputation as an online-based video service
59 provider application is an opportunity that can be used by educators to make video lecture
60 materials that can be accessed by students anywhere and anytime. This is considered to be a
61 solution for students who live in remote areas and have unstable internet networks during the
62 pandemic. Students can access learning videos that have been explained by educators when the
63 network is stable so they do not worry about missing the material. In addition, YouTube allows
64 students to search for/download reference videos, create their own learning videos, upload, and
65 share them with the public (Baskoro, 2009), so as to increase the innovation and creativity of
66 students, and indirectly hone higher-order thinking skills when responding to
67 comments/questions from audiences related to the shared videos. This has become a
68 consideration for various higher education institutions to use these two applications. One of them
69 is at the IAIN Kendari, Faculty of Education and Teacher Training, Biology Tadris's
70 Department.

71 At Biology Tadris's Department, there is one course entitled Biology Learning Media. In
72 this course, students are required to be able to innovate by making learning media of their own
73 work. The lecturer will explain in theory to students about various learning media that can be
74 used in learning biology, which then the students will be assigned to make the media based on
75 the guidance of the lecturer. So, characteristically, this subject really needs interaction between
76 students and lecturers, and the activities must be visual. However, since the pandemic era, the

77 lecture process has been hampered so that homebase lecturers of the biology tadriss study
78 program have made use of the WhatsApp and YouTube facilities to keep interacting and create
79 learning media used by students in lecturing activities. Through the WhatsApp chat group, the
80 lecturer will guide students in theory, then assign students to make learning media according to
81 the guidance given. Students make videos of the work process assignments that have been given,
82 by using YouTube as an additional reference, so that students are expected to be able to make
83 their own version of learning media. Furthermore, the video will be uploaded to YouTube and
84 distributed to the public so that it can be checked by the lecturer and can be watched by the
85 public. With this, the lecturer hopes that the interaction between students will continue to be
86 established, and learning objectives can still be achieved even during a pandemic.

87 However, to determine the effectiveness and efficiency of the use of these two
88 applications, it is necessary to conduct a study of the two applications by giving a student
89 response questionnaire to the methods used by the lecturer.

90

91 **Material and Methods**

92 This research is a case study research, which was carried out from March to June 2020, at
93 PSTB, FTIK, IAIN Kendari. The data source of this study was students of semester 4, 2019/2020
94 academic year, who programmed biology learning media courses. The method used in this
95 research is the ex post facto method, which is used to interpret the present situation as a result of
96 various factors that have occurred previously, then analyze and determine a solution for the
97 present situation (Sappaile, 2010).

98 ***Research Instruments***

99 The instrument used in this study was an online questionnaire (google form based) about
100 student responses to the learning methods used during the lecture process of biology learning

101 media, which were given and filled out at the end of the semester. The instrument model can be
 102 seen in Table 1 below.

103 Table 1. Research Instruments

No.	Questions / Indicators	Answer Options		
WhatsApp application				
		Agree	Less Disagree	Disagree
1	Do you agree if the WhatsApp media is used as an alternative to learning biology learning media during this pandemic?			
		Effective	Less effective	Ineffective
2	How effective is the use of WhatsApp in implementing biology learning media courses during this pandemic?			
		Yes	Not really	Not
3	Are you good at using WhatsApp?			
4	Describe your inhibiting factors in using WhatsApp as an alternative to learning biology learning media in this pandemic.			
5	Describe your supporting factors in using WhatsApp as an alternative to learning biology learning media in this pandemic.			

YouTube app

	Agree	Less Disagree	Disagree
5 Do you agree that YouTube media is used as an alternative to learning biology learning media during this pandemic?			

	Effective	Less effective	Ineffective
6 How effective is the use of YouTube in implementing biology learning media courses during this pandemic?			

	Yes	Not really	Not
7 Are you good at using YouTube?			

8 Describe your supporting and inhibiting factors in using YouTube as an alternative to learning biology learning media during this pandemic

104

105 ***Data Collection Technique***

106 The data in this study were obtained by two techniques, namely the questionnaire
107 technique and documentation. The questionnaire was distributed via the WhatsApp chat group,
108 which was then filled in directly and virtually by the student concerned. The answer for each
109 instrument item will affect the effectiveness and efficiency of using WhatsApp and YouTube in
110 lecturing activities on biology learning media. Furthermore, documentation techniques are
111 needed to see, know, and understand instructional media videos that have been made by students
112 through the YouTube application.

113 ***Data Analysis***

114 The data will be analyzed by SWOT, which is an analysis of the situation by looking at
115 the four points of view (strength, weakness, opportunity, and threat/challenge), with the hope
116 that the researcher can examine the various factors that affect lecture activities in biology
117 learning media. In addition, to facilitate the SWOT analysis, the data obtained will be analyzed
118 descriptively quantitatively, by determining the percentage of the number of correspondents in
119 filling out the questionnaire that has been given (Sugiyono, 2010).

120 ***Hypothesis***

Best buddies = If the WhatsApp and YouTube applications are effective and efficient as
teaching media in biology learning media courses in the pandemic era;

Buddies = If the WhatsApp and YouTube applications are only effective but
inefficient / inefficient as teaching media in biology learning media
courses in the pandemic era, vice versa;

Rival = If the WhatsApp and YouTube applications are not effective and
efficient as teaching media in biology learning media courses in the
pandemic era

121

122 **Results and Discussion**

123 This research process was carried out during the pandemic era, since the enactment of
124 Working / Learning From Home (W/LFH). The questions made by the researcher are given in
125 the form of an online google form questionnaire which is distributed at the end of the semester of
126 lecture activities. From this distribution, researchers can find out the response about the use of
127 WhatsApp and YouTube applications as teaching media in biology learning media courses. In
128 addition, researchers also assessed the learning media created by students as an alternative for

129 the convenience of conducting a SWOT analysis. The student response to the use of the
 130 WhatsApp application can be seen in Table 2 below.

131 Table 2. Student Responses About the Use of Alternative WhatsApp Teaching Media in Biology
 132 Learning Media Courses

No.	Questions / Indicators	Number of Respondents per Answer		
		Choice		
		Agree	Less Disagree	Disagree
1	Do you agree if the WhatsApp media is used as an alternative to learning biology learning media during this pandemic?	29	0	0
	Total		29	
	%	100	0	0
		Effective	Less effective	Ineffective
2	How effective is the use of WhatsApp in implementing biology learning media courses during this pandemic?	13	9	7
	Total		29	
	%	44.83	31.03	24.14
		Yes	Not really	Not
3	Are you good at using WhatsApp?	22	5	2
	Total		29	
	%	75.86	17.25	6.89

134 Based on Table 2, it is known that all students (100%) think that the WhatsApp
135 application is very helpful in carrying out the lecture process. Based on the results of the
136 questionnaire that had been filled in, students argued that one of the main things that happened in
137 the biology learning media course was that the lecturer gave information to students about the
138 steps in making learning media in a row. With the help of WhatsApp, these steps can be
139 explained clearly and stored in the conversation log, so that at any time students can open the
140 note if they experience problems in the process of making their media. This is in line with
141 research conducted by Khusaini, Suyudi, Winarto,

142 However, only 13 students (44.83%) thought that the WhatsApp application was very
143 effective in being used as an alternative teaching media for biology learning media courses.
144 Meanwhile, 9 students thought it was not effective because the network in their area was
145 unstable and the signal was often lost, even 7 students thought it was not effective because they
146 did not have an internet data package to be able to use WhatsApp. This is in line with research
147 conducted by Rahartri (2019) which states that the WhatsApp application is a lightweight,
148 battery-efficient and data packet-saving application, but is still required to use the internet in its
149 work process. In addition, based on one of the internet service provider sites in Indonesia,
150 namely Telkomsel, it is known that the selling price of internet packages is standard
151 (<https://www.telkomsel.com/telkomsel-internet>, accessed on 14 September 2020). However,
152 with pandemic conditions, students will spend more often on internet data packages and
153 indirectly need more money to buy these internet data packages.

154 Then, there were 2 students (6.89%) who were not proficient in using the WhatsApp
155 application. This contradicts research conducted by Citra (2018), which states that the WhatsApp
156 application is an application that is easy to learn and understand, and does not require special
157 expertise in its operation. After being traced through a completed questionnaire, it was found that
158 the two students came from underprivileged families so they did not have a smartphone to be
159 able to use the WhatsApp facility.

160 Based on the data from the research and discussion above, it can be said that the
 161 WhatsApp application efficiently acts as a teaching medium in biology learning media courses,
 162 but it is less effective considering there are still some big obstacles that must be faced by
 163 students if they want to use the application (for example, the absence of a smartphone. as the
 164 main support for the use of the application).

165 Furthermore, student responses to the use of the YouTube application can be seen in
 166 Table 3 below.

167 Table 3. Student Responses About the Use of Alternative YouTube Teaching Media in the
 168 Biology Learning Media Course

No.	Questions / Indicators	Number of Respondents per Answer Choice		
		Agree	Less Disagree	Disagree
1	Do you agree that YouTube media is used as an alternative to learning biology learning media during this pandemic?	17	12	0
	Total		29	
	%	58.62	41.38	0
		Effective	Less effective	Ineffective
2	How effective is the use of YouTube in implementing biology learning media courses during this pandemic?	10	19	0
	Total		29	
	%	34.48	65.52	0
		Yes	Not really	Not
3	Are you good at using YouTube?	16	13	0

Total		29	
%	55.17	44.83	0

169

170 Based on Table 3, it is known that 17 students (58.62%) argue that the YouTube
171 application can be used as an alternative teaching media in biology learning media courses.
172 Based on the questionnaire that has been filled in, students argue that the biology learning media
173 course requires visualization in terms of the process and the results. The learning media made
174 can vary because they get reference assistance from YouTube videos so that students can
175 innovate more in making their work. In addition, students also record and upload the
176 manufacturing process to YouTube, making it easier for lecturers to provide objective grades.
177 This is in line with research conducted by Samosir, Pitasari, Purwaka, and Tjahjono (2018) who
178 state that the YouTube application is a popular application today where almost everyone uses it
179 and is very suitable for various needs (one of which is as a learning medium). However, Risyan
180 (2020) explains that for standard video sizes, the amount of internet quota used when using
181 YouTube is 562.5 MB / hour. If it is accumulated with the total time spent conducting lectures,
182 then of course this becomes a financial burden for students. Therefore, as many as 12 students
183 (41.38%) thought they did not agree if the YouTube application was used as an alternative media
184 for learning biology. Risyan (2020) explains that for standard video sizes, the amount of internet
185 quota used when using YouTube is 562.5 MB / hour. If it is accumulated with the total time
186 spent conducting lectures, then of course this becomes a financial burden for students. Therefore,
187 as many as 12 students (41.38%) thought they did not agree if the YouTube application was used
188 as an alternative media for learning biology. Risyan (2020) explains that for standard video sizes,
189 the amount of internet quota used when using YouTube is 562.5 MB / hour. If it is accumulated
190 with the total time spent conducting lectures, then of course this becomes a financial burden for
191 students. Therefore, as many as 12 students (41.38%) thought they did not agree if the YouTube
192 application was used as an alternative media for learning biology.

193 Then, as many as 10 students (34.48%) thought that the YouTube application was very
194 effective in being used as an alternative teaching media for biology learning media courses.
195 Meanwhile, 19 students (65.52%) thought it was not effective because the network in their area
196 was unstable and often lost signal. This is in line with research conducted by Akbar (2018)
197 which states that the main obstacle to using YouTube is an internet connection, where a stable
198 internet connection is required to use or obtain information on YouTube. If the internet
199 connection is unstable / lost, the video quality will be reduced and even inaccessible.

200 Then, there were 16 students (55.17%) who were proficient in using the YouTube
201 application, and 13 students (44.83%) who were less proficient. Based on the questionnaire that
202 has been filled in, it is known that the almost balanced comparison is due to the habit of using
203 the application. Where proficient students are those who open and use the YouTube application
204 every day more than less proficient students. This is in line with the research conducted by
205 Faizah, Fakhruddin, and Bagiya (2018), which states that the use of YouTube learning media will
206 be effective if students regularly and continuously take a scientific approach, namely observing,
207 asking questions, exploring, associating, and communicating everything. in competent people.

208 Based on the data from the research and discussion above, it can be said that the
209 YouTube application is efficient as a teaching medium in biology learning media courses, but it
210 is not effective considering there are still some major obstacles that must be faced by students if
211 they want to use the application (for example, networks that do not stable, and wasteful use of
212 internet quota).

213 Furthermore, a SWOT analysis was carried out to see the strengths, weaknesses,
214 obstacles, and challenges faced by lecturers and students if they continued to use the WhatsApp
215 and YouTube applications as alternative teaching media in biology learning media courses
216 during the pandemic. SWOT analysis interpretation can be seen in Table 4 below.

217 **Table 4.** SWOT Analysis of Alternative Use of WhatsApp and YouTube Teaching Media in the
 218 Biology Learning Media Course

No.	SWOT Analysis / Indicators
<i>Strength/Power</i>	
1	Good time management optimization can occur when using the WhatsApp and YouTube applications;
2	WhatsApp can operate in an unstable network condition;
3	The availability of various concrete references on YouTube, so that students can better understand the material provided by their lecturers;
4	The instructional video media that has been created will be stored forever in the YouTube database, and can be accessed at any time for use as content evaluation;
5	WhatsApp and YouTube only need an internet network to operate, without any additional costs.
<i>Weakness/Weakness</i>	
1	During using WhatsApp, the possibility for unsynchronous learning to occur is greater, due to the low level of supervision by the lecturer;
2	Unstable networks can affect YouTube application performance;
3	There are still many students who live with all limitations, it is still difficult to buy data packages to access the internet;
4	There are still some students who do not have smartphones so they are not proficient in using the WhatsApp application.
<i>Opportunity/ Opportunity</i>	
1	Students can use WhatsApp as a means of sharing knowledge and increasing interpersonal communication capacity;
2	Students innovate by making their own instructional media videos;

3	Students can use YouTube as a means of developing entrepreneurship
<i>Threat/Challenge</i>	
1	Students are trained to control all communication, because the WhatsApp application is a limited privacy system. Where it allows all members of the community to go too far in speaking;
2	Students are trained to learn to operate WhatsApp and YouTube so that they can carry out lecture activities optimally;
3	Students are required to develop higher order thinking skills, as a standard in responding to all comments and questions from YouTube users;
4	The campus can reduce the burden on students by creating a free internet quota program.

219

220 Based on table 4, it is known that the number of strengths from using alternative teaching
221 media WhatsApp and YouTube is more than the weaknesses. It can be assumed that by
222 maintaining strength and increasing opportunities, the WhatsApp and YouTube applications can
223 be a solution for lecturing activities on biology learning media during a pandemic. In addition, to
224 answer the challenges of the SWOT analysis, the internal party (campus) has tried to provide a
225 solution by reducing the cost of the Single Tuition Fee (Uang Kuliah Tunggal/UKT) for IAIN
226 Kendari students starting in the academic year 2020/2021
227 (http://iainkendari.ac.id/content/detail/petunjuk_teknis_keringanan_uang_kuliah_tunggal_ukt,
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229 by providing free internet quota for education implementers during the pandemic period
230 (<https://www.kemdikbud.go.id/main/files/download/2e848773d6773b1>, accessed on 14
231 September 2020). Hopefully, with the solution that has been given, it can ease the burden on
232 students regarding network quota and the cost of buying internet packages, so that lecture

233 activities can still be carried out, especially in the use of WhatsApp and YouTube applications
234 which can be accessed easily by students later.

235 Based on the description above, it can be seen that the WhatsApp and YouTube
236 applications play an efficient role in helping the lecture process of biology learning media. Then,
237 hopefully these two applications will also be of effective value with the various solutions that
238 have been given, so that their effectiveness and efficiency can be achieved.

239

240 **Conclusion**

241 ³ Based on the results of research and discussion, several conclusions can be drawn as follows.

- 242 1. WhatsApp is an alternative teaching media that is efficient to use during a pandemic
243 (especially in biology learning media courses), but is less effective in use due to various
244 obstacles experienced by students, for example the absence of a smartphone as the main
245 support for application use;
- 246 2. YouTube is an alternative teaching media that is efficient to use during a pandemic
247 (especially in biology learning media courses), but is less effective in use in areas where
248 internet connections are less stable and the selling price of data packages is expensive;
- 249 3. Based on the overall data analysis and discussion, it can be concluded that the WhatsApp and
250 YouTube applications are only able to act as "Friends" for biology learning media courses;
- 251 4. Based on the SWOT analysis, it is known that there are many advantages and opportunities
252 in using the WhatsApp and YouTube applications, which can be the development of learning
253 activities and are able to answer the challenge of making WhatsApp and YouTube the "Best
254 Friends / Friends".

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