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The Effectiveness of Online Learning Using Online Media in Basic Programming Subjects

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ABSTRACT

This study aims to determine the effectiveness of online learning using online media during the COVID-19 pandemic in basic programming subjects. This research is descriptive quantitative research that focuses on evaluating learning using online media. The study population is all students of SMK Negeri 2 Bandung who are taught basic programming subjects using online methods. The research sample was students of grade X TKI 1 SMK Negeri 2 Bandung who were selected using a simple random sampling technique by considering population homogeneity. The data collection instrument used an online learning questionnaire. Data analysis using descriptive statistics. The results suggest that learning basic programming using online media is "very effective" (23.3%), most of them rated it "effective" (46.7%), and rated it "mediocre" (20%). There are also learners who consider online learning "ineffective" (10%), and no one rate it "very ineffective" (0%). Finally, to improve the quality of basic programming online learning during the COVID-19 pandemic, educators must fulfill some suggestions from respondents, namely: (1) learning is carried out through online media; (2) provision of concise learning materials; (3) minimize sending materials in the form of files to save quota; (4) The selection of material in the file must be based on easy-to-understand language criteria.

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1. INTRODUCTION

The Covid-19 pandemic has hit all countries around the world, including Indonesia. According to the latest data from the World Health Organization (WHO) dated April 24, 2020, as many as 213 countries have contracted Covid-19, 2,631,839 of whom were confirmed positive and 182,100 died. Covid-19 is a contagious disease, which means it can spread, either directly or indirectly, from one person to another. This condition attacks the respiratory system such as the nose, throat, and lungs. The complexity of handling the outbreak, the lack of vaccines and drugs to cure Covid-19 patients and the limited personal protective equipment (PPE) for health workers have made the government implement strict policies to break the chain of spread of Covid-19.

One way to break the chain of spread of Covid-19 is to limit community interaction which is applied with the term physical distancing. However, the physical distancing policy can hamper the rate of growth in various areas of life, both economic, social, and of course education. The government's decision to furlough students, move the teaching and learning process at school to home by implementing the Work from Home (WFH) policy made many parties uneasy.

WFH stands for work from home which means working from home. WFH policy is contained in the Circular Letter of the Minister of State Apparatus Empowerment and Bureaucratic Reform (PAN &; RB) Number 50/2020 concerning the Second Amendment to the Circular Letter of the Minister of PAN &; RB Number 19/2020 concerning Adjustments to the Work System of the State Civil Apparatus in Efforts to Prevent the Spread of Covid-19 in Government Agencies. As civil servants, teachers in an effort to carry out the learning process need to be done online or online. However, the implementation of the online learning process has several obstacles. One of the toughest obstacles in online learning is teaching basic programming subjects.

The problem today is that there are still many students who consider basic programming a difficult lesson. As Mulyadi (2010) argues, basic programming is considered a difficult lesson because the characteristics of basic programming are abstract, logical, systematic, and full of confusing programming language and program syntax. The difficulties that exist in basic programming subjects demand the creativity of teachers of basic programming subjects to develop their learning, both in terms of methods and media used.

The use of online media or multimedia-based media is one solution to make students able to understand the subject matter well. Online learning using online media has been implemented at SMK Negeri 2 Bandung since the implementation of work from home on March 16, 2020 during the COVID-19 pandemic. Online media used such as YouTube, WhatsApp group, google classroom, and quizzes. Materials are provided in the form of Power Points, short videos, and reading materials. However, in the implementation of online learning, it is necessary to evaluate so that clear data-based improvement steps are obtained. That is what underlies the author to find out the picture of the effectiveness of online learning using online media in the basic programming subjects of class X TKI 1 SMK Negeri 2 Bandung.

2. METHODS

This research is descriptive quantitative research to determine the picture of the effectiveness of online learning using online media in basic programming subjects. The study population is all students of SMK Negeri 2 Bandung who are taught basic programming subjects using online methods. The sample of respondents to this study was 37 students of grade X TKI 1 Negeri 2 Bandung who were selected using a simple random sampling technique

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by considering population homogeneity. The data collection instrument uses questionnaires containing closed, semi-closed, and open-ended question types that are shared using Google Meet. Data analysis uses descriptive statistics with the help of computerization.

3. RESULTS AND DISCUSSION

3.1. Sample Characteristics

The number of respondents in this study was 37 students consisting of 27.0% female and 72.9% male (See **Figure 1**).

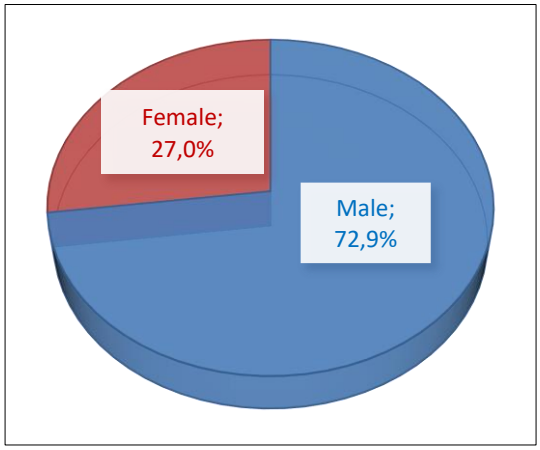

Figure 1. Gender figure.

Most respondents came from Sumur Bandung sub-district (56.7%) and surrounding sub-districts, namely Sukasari (16.7%), Cibeunying Kaler (13.3%), Sukajadi (6.7%), and Coblong (6.7%) (See **Figure 2**).

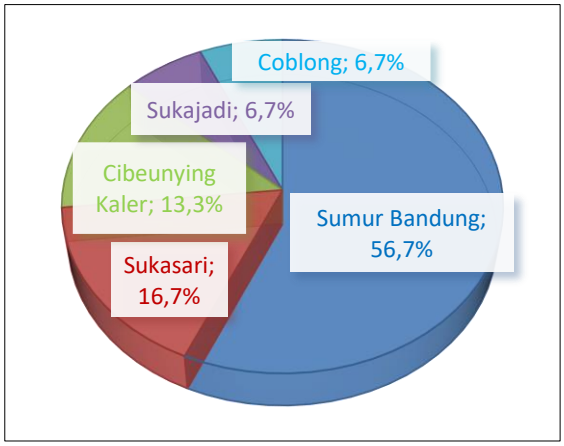

Figure 2. Domicile

The domicile of students who are only in the sub-district area of this school has shown that this school has complied with the rules in accepting students, namely in accordance with the location of the child's residence or the rules regarding the zoning system. The rules related to this zoning system are contained in the Regulation of the Minister of Education and Culture Number 51 of 2018 concerning the Admission of New Students in Kindergarten, Junior High, Senior High School, and Vocational School. In the regulation, it is explained that schools under the government or state status in the process of Admission of New Students (PPDB) must accept a minimum of 90 percent of new students who come from near the school.

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During the implementation of work from home, respondents spent the most time in a day doing schoolwork for all subjects, including math assignments. Another activity they do is playing mobile phones. They said during this WFH, they could not resist playing mobile phones because in doing their tasks they used mobile phones. So, in between doing the task they play games, or use social media to chat with friends (See **Figure 3**).

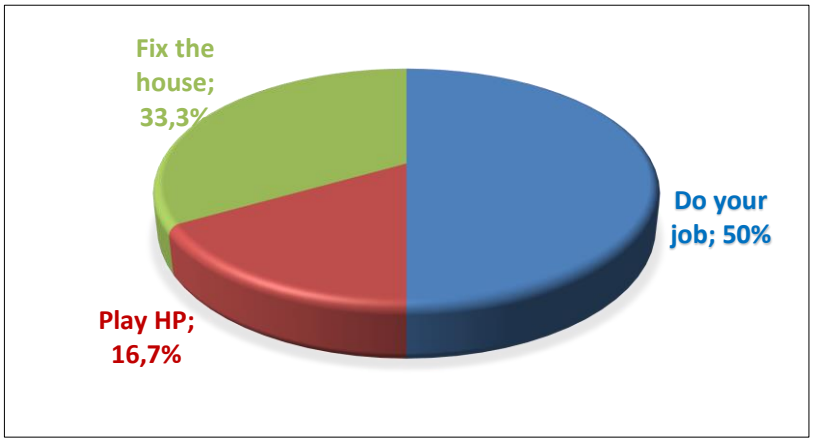

Figure 3. The Most Abundant Activities Done During WFH

The use of mobile phones with too long duration and intensity that is too frequent because they are used to do tasks and open social media resulted in them experiencing the most physical complaints in the form of eye fatigue (53.3%). They also complained of headaches (33.3%), frequent drowsiness (33.3%), difficulty resting (20%), and other complaints (13.3%) such as fever, shortness of breath, and body aches. Despite this, as many as 30% of learners felt there were no physical complaints (See **Figure 4**).

These physical complaints are the impact of excessive use of gadgets. The results of this study are in accordance with the results of research previously conducted by (Sidabutar, 2019) which showed that the use of gadgets can cause headaches and eye irritation. According to Ilyas in (Bawelle, 2016), eye fatigue can occur if the eyes focus on objects close for a long time and the eye muscles work harder to see objects, especially if accompanied by blinding lighting.

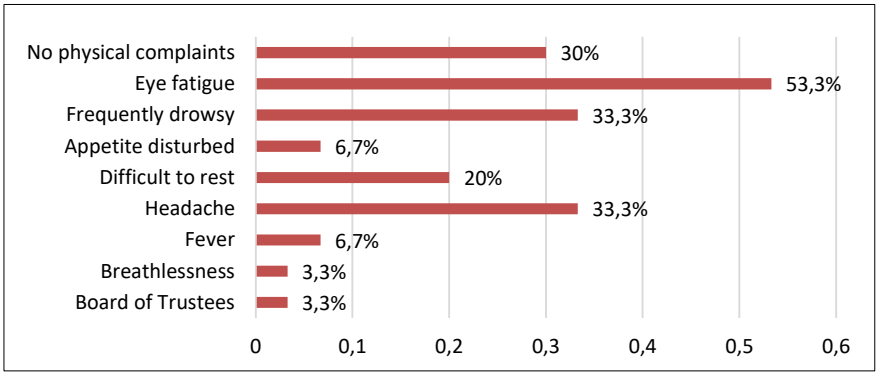

Figure 4. Physical Complaints Experienced

In addition to physical complaints, students also experience psychological complaints. The most common complaints were feeling like everything was ending soon (70%), they also felt deep boredom (63.3%), dizziness, (20%), worry (20%), and anxiety (3.3%). However, there were those who felt no psychological complaints at all (16.7%) (See **Figure 5**).

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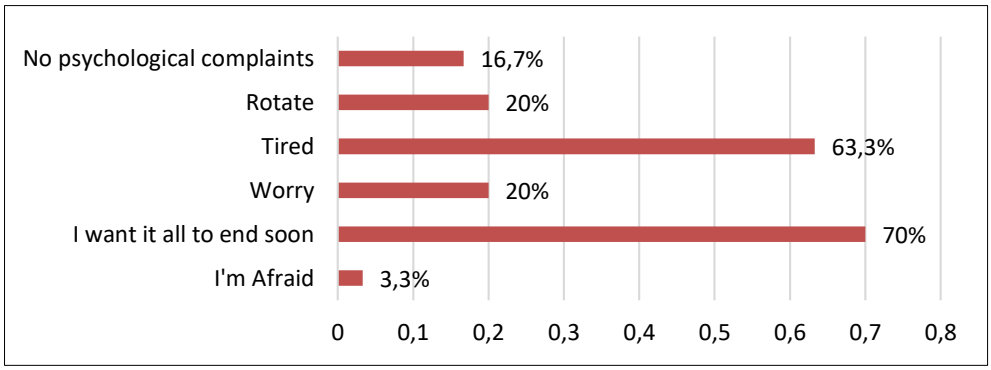

Figure 5. Psychological Complaints Experienced by Students

3.2. Overview of Basic Programming Online Learning

3.2.1. Online Learning Models Students Love

The results of the descriptive study illustrate that only some students who like online learning are 26.7%, and those who like the blended learning model (a combination of face-to-face with online) by 26.7%, and most students say they like face-to-face learning by 46.6%. (See **Figure 6**).

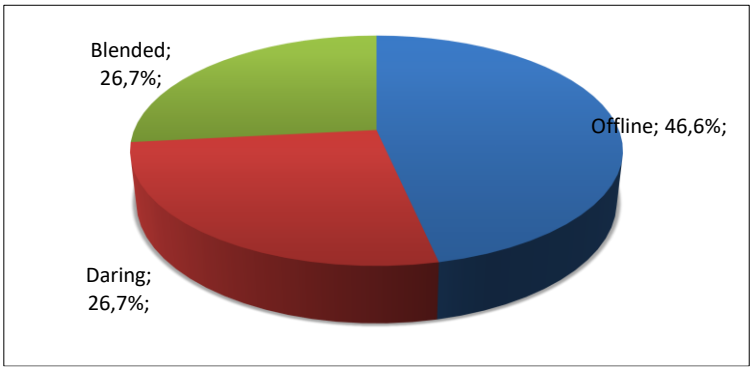

Figure 6. Preferred Learning Model

(Hartanto, 2016) revealed that cheap and easy information and telecommunications technology will eliminate space and time limitations that have limited the world of education. Some logical consequences that occur in the use of e-learning, among others: (1) students can easily access learning materials anywhere without being limited to place and time restrictions; (2) students can easily learn and discuss with experts or experts in their fields of interest; (3) Learning materials can even be easily taken in various corners of the world regardless of where students learn. These opportunities still face challenges both from costs, readiness of information technology infrastructure, society, and regulations that support the continuity of e-learning.

Although there are many conveniences provided by online learning through the internet, the results of this study show that students prefer face-to-face learning. Based on an interview with an educational psychologist, Eva Maizarra Puspita Dewi, it is argued that there are three behavioral reactions of individuals when faced with danger, first he will reject reality. Next, he will bargain, and finally he will accept. Maybe nowadays learners prefer face-to-face learning because they are still in the stage of resisting. This is because it has only been a month since this online learning took place. It is possible that in the next few months when students are asked the same question again, maybe the answer will change because they are able to adjust to online learning.

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The results of the study (Kuntarto, 2017) show that the online learning model has provided a new experience that is more challenging than the conventional learning model (face-to-face). Unlimited time and place of learning gives students the freedom to choose the right moment in learning based on their interests, so that the ability to absorb learning materials becomes higher than learning in the classroom, while the results of research (Wardani, 2018) that blended learning can make students more active in the learning process in class and online, can make the learning process more enjoyable. If the teacher can make the learning process fun, then students will be interested in following the learning process.

3.2.2. Most Loved Online Media

Students The most preferred online media for students are Google Meet (53%), WhatsApp Group (21%), Youtube (16%), Instagram (7%), and Zoom (3%). They like the medium because it is considered easy and practical to use. In addition, because it does not take too much quota credit. However, they still want face-to-face meetings via online such as YouTube and Zoom as they suggested in this study. It's just that quota constraints and network access are limited, so they hope that the government provides effective and not burdensome online facilities. (See **Figure 7**).

Waryanto (2006) revealed that the advantages of the online learning model are that it can be used to deliver learning without being limited by space and time, can use various resources that are already available on the internet, and teaching materials are relatively easy to update. In addition, it can increase the independence of students in the learning process.

The results of the study Chandrawati (2010) that teachers are expected to be able to present material through the web that is interesting and in demand, serve guidance and communication via the internet, and other skills needed. The results of the study Hikmatiar (2020), show that the use of Google Meet as a learning medium has a positive impact on improving learning outcomes, interest, and motivation of students in learning and fostering creative attitudes in students or students. Based on the results of research (Maharani, 2019), Google Meet can increase interest and motivation because teaching materials are fully available in Google Meet with its features.

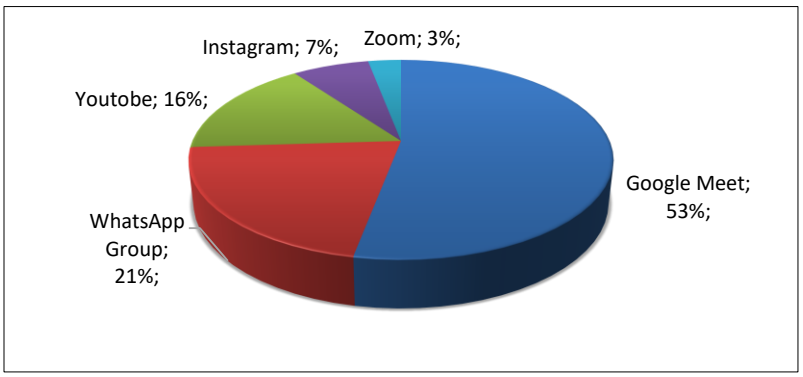

Figure 7. Preferred online media.

3.2.3. Learning Methods Favoured by Students Online

The most preferred online learning methods for learners are as follows: discussions, quizzes, individual assignments, lectures with teachers explaining, videos, and group assignments (See **Figure 8**).

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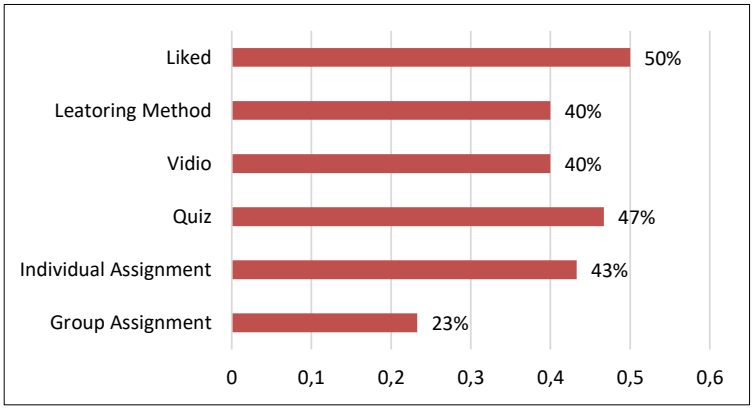

Figure 8. The Preferred Learning Method When Online

The results of the study Sari (2015) revealed that to motivate students both intrinsically and extrinsically, the use of online learning (E-learning) in the learning process must pay attention to the principles of use and the advantages and disadvantages of online learning (E-learning). The learning process using online learning (E-learning) should not place students only as "listeners" or "spectators", but also encourage active participation from students to interact, dialogue, cooperate, share and build shared knowledge. In addition, in using online learning (E-learning) teachers must be creative and innovative and have a critical attitude in choosing learning materials, be ethical in utilizing these materials, avoid using images or audio that are less relevant to the learning material, encourage active participation from students, give attention and provide more time to students not limited to face-to-face in class, Patiently guide students who have difficulty in using e-learning, professionals and have the motivation to continue learning and improving knowledge and skills.

The results of the study Hanum (2013) that learning interactions can run if there are learning managers (teachers), learning resources, learning subjects, interactions between teachers / teachers. Learning management can be done by teachers, so that teachers provide an active role in the learning system including e-learning. The results of the study Yazdi (2012) show that through the discussion/forum method, teachers and students can interact directly so as to facilitate students in the learning process when online.

3.2.4. Obstacles Faced by Students While Online

The obstacles faced by students during online learning are unstable internet networks, too many tasks, difficulty focusing, limited quota credit, complicated applications, and prefer face-to-face learning. **(See Figure 9).**

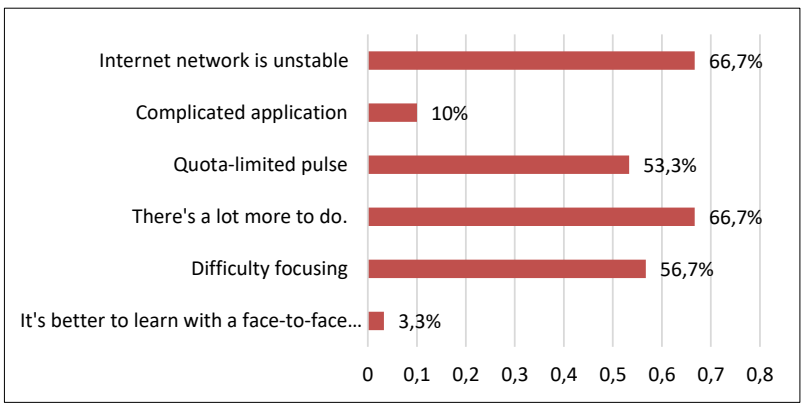

Figure 9. Obstacles Faced Online

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The results of the study (Hendrastomo, 2008) that the availability of internet access is very necessary in online learning (E-learning), because this learning characteristic always uses and utilizes the internet network. In general, the speed of internet network access in Indonesia is relatively slow, the availability of internet networks is still limited and the price to access the internet is relatively expensive so that it becomes an obstacle to e-learning learning.

3.2.5. Online Learning Effectiveness Assessment

Students accept the fact that work from home is currently being implemented which demands online learning. Learners rated basic programming learning using online media as highly effective (23.3%), most rated them effective (46.7%), and rated them mediocre (20%). Although there are also students who consider online learning ineffective (10%) (See **Figure 10**).

The use of online media in online learning allows students to have high enthusiasm for learning and doing assignments. The use of the internet in students can significantly affect student motivation in using online learning (E-learning). The results of the study Puspitasari (2018) show that there is a significant influence on the use of learning media on student motivation. The results of the study Aurora (2019) also show that there is a positive and significant influence between the use of online learning media (E-learning) and student learning motivation.

The results of the study (Nadziroh, 2017) that online learning (E-learning) is effective in improving the quality of learning, because the learning process is not only fixed at one time and indoors.

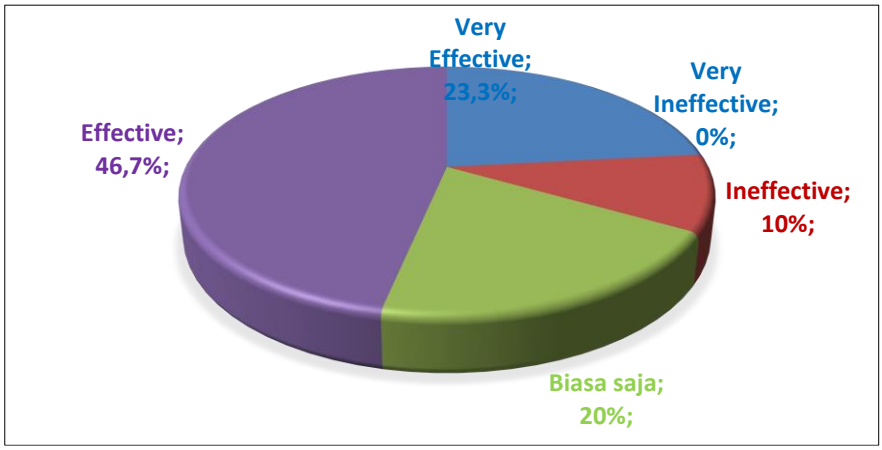

Figure 10. Online Learning Effectiveness Assessment

4. CONCLUSION

Learning innovations carried out by basic programming teachers, namely by using online media, help students undergo online learning during the COVID-19 pandemic. As a result, students rated learning basic programming using online media as very effective (23.3%), most of them rated it effective (46.7%), and rated it as ordinary (20%). Although there are also learners who consider online learning ineffective (10%), and absolutely no one (0%) who rate it very ineffective. To make basic programming learning even more effective, in the future teachers or educators are expected to apply ten suggestions given by students, namely (1) learning is carried out through Google Meet; (2) provision of concise learning materials; (3) minimize sending material in the form of heavy videos to save quota; (4) the selection of material in the video must be based on easy-to-understand language criteria; (5) continue to

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provide materials prior to the assignment; (6) provision of varied and different questions for each student; (7) assignments must include how they work; (8) assign assignments according to the lesson schedule; (9) remind learners if there are assignments assigned; and (10) reduce duties.

There are 10 suggestions given by the research sample so that basic programming learning in the future is much more effective, namely:

(i) Learning is done through Google Meet.
(ii) Provision of concise learning materials.
(iii) Minimize sending material in the form of heavy videos to save quota.
(iv) The selection of material in the video should be based on easy-to-understand language criteria.
(v) It remains to provide materials before the assignment.
(vi) Provision of questions that vary students.
(vii) The assignment must include how it works.
(viii) Assign assignments according to the lesson schedule.
(ix) Remind learners if there is a task assigned.
(x) Reduce tasks.

Although students prefer face-to-face learning, they accept the reality of online learning because of the implementation of work from home from the government. This makes them use mobile phones more often and longer to go online and to do lesson assignments. It also makes them experience the most physical complaints such as eye fatigue and headaches. So is the psychological complaint that you want everything to end soon.

6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

7. REFERENCES

Aurora, A., and Effendi, H. (2019). Pengaruh penggunaan media pembelajaran e-learning terhadap motivasi belajar mahasiswa di Universitas Negeri Padang. *Jurnal Teknik Elektro Dan Vokasional, 5*(2), 11–16.

Bawelle, C. F. N., Lintong, F., and Rumampuk, J. (2016). Hubungan penggunaan smartphone dengan fungsi penglihatan pada mahasiswa Fakultas Kedokteran Universitas Sam Ratulangi Manado angkatan 2016. *Jurnal E-Biomedik, 4*(2), 0–5.

Chandrawati, S. R. (2010). Pemanfaatan e-learning dalam pembelajaran. *Jurnal Cakrawala Pendidikan, 8*(2), 172–181.

Hanum, N. S. (2013). Keefetifan e-learning sebagai media pembelajaran (studi evaluasi model pembelajaran e-learning SMK Telkom Sandhy Putra Purwokerto). *Jurnal Pendidikan Vokasi, 3*(1), 90–102.

Hartanto, W. (2016). Penggunaan E-Learning sebagai Media Pembelajaran. *Jurnal Pendidikan Ekonomi, 10*(1), 1–18.

Hendrastomo, G. (2008). Dilema dan tantangan pembelajaran e-learning 1 (The Dilemma and the Challenge of. *Majalah Ilmiah Pembelajaran, 4*, 1–13.

DOI: http://dx.doi.org/10.17509/xxxx.xxx
p- ISSN xxxx-xxxx e- ISSN 2774-7891

Hikmatiar, H., Sulisworo, D., and Wahyuni, M. E. (2020). Pemanfaatan learning manegement system berbasis google classroom dalam pembelajaran. *Jurnal Pendidikan Fisika, 8*(1), 78–86.

Kuntarto, E. (2017). Keefektifan model pembelajaran daring dalam perkuliahan bahasa Indonesia di perguruan tinggi. *Journal Indonesian Language Education and Literature, 3*(1), 53–65.

Maharani, N., and Kartini, K. S. (2019). Penggunaan google classroom sebagai pengembangan kelas virtual dalam keterampilan pemecahan masalah topik kinematika pada mahasiswa jurusan sistem komputer. *PENDIPA Journal of Science Education, 3*(3), 167–173.

Nadziroh, F. (2017). Analisa efektifitas sistem pembelajaran berbasis e-learning. *Jurnal Ilmu Komputer Dan Desain Komunikasi Visual (Jikdiskomvis), 2*(1), 1–14.

Puspitasari, P., Sari, P., Putri, J., and Wuryani, W. (2018). Pengaruh penggunaan media pembelajaran terhadap motivasi belajar mahasiswa IKIP Siliwangi. *Parole: Jurnal Pendidikan Bahasa Dan Sastra Indonesia, 1*(2), 227–232.

Sari, P. (2015). Memotivasi belajar dengan menggunakan e-Learning. *Ummul Quro, 6*(2), 20–35.

Wardani, D. N., Toenlioe, A. J. E., and Wedi, A. (2018). Daya tarik pembelajaran di era 21 dengan blended learning. *Jurnal Kajian Teknologi Pendidikan (JKTP), 1*(1), 13–18.

Waryanto, N. H. (2006). On-line learning sebagai salah satu inovasi pembelajaran. *Pythagoras, 2*(1), 10–23.

Yazdi, M. (2012). E-learning sebagai Media Pembelajaran Interaktif Berbasis teknologi Informasi. *Jurnal Ilmiah Foristek, 2*(1), 143–152.

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