



RESEARCH ARTICLE

Students' perception of online learning amidst the Covid-19 pandemic: A study of junior, senior high school and college students in a remote area [version 1; peer review: 1 approved, 1 approved with reservations]

Senida Harefa , Grace Lamudur Arta Sihombing 

Faculty of Religious Education, Christian Education Management, Institut Agama Kristen Negeri Tarutung, Tarutung, Sumatera Utara, 22758, Indonesia

V1 First published: 27 Aug 2021, 10:867
<https://doi.org/10.12688/f1000research.52152.1>
Latest published: 14 Feb 2022, 10:867
<https://doi.org/10.12688/f1000research.52152.2>

Abstract

Background: The COVID-19 pandemic has brought about many changes in all sectors of life, especially in the field of education. These changes aim to make the learning process more effective in the pandemic environment. However, it can be challenging, as some students do not give positive responses to these changes, especially those in remote areas. This article aims to identify and report students' perceptions about the effectiveness of online learning during the COVID-19 pandemic in the remote North Tapanuli region of Indonesia.

Methods: In this study, data were obtained using an online survey involving 30 students from three levels of education, namely junior high school, senior high school, and college. The data gathered from the survey were analyzed using quantitative descriptive methods.

Results: Results show that online learning is considered less effective by students in remote areas; this happens because communication networks and infrastructure do not adequately support them to follow online learning.

Conclusion: Teachers need to evaluate how to teach as well as re-design models and approaches to be applied in learning. This can be achieved by adjusting to the student's current situation to generate interest and willingness to learn online.

Keywords

students' perception, online learning, COVID-19 pandemic

Open Peer Review

Approval Status  

1

2

version 2

(revision)

14 Feb 2022

version 1



27 Aug 2021



[view](#)



[view](#)

1. **Xuesong (Andy) Gao** , University of New South Wales, Sydney, Australia
2. **Reza Rachmatullah** , Universitas PGRI Adi Buana, Surabaya, Indonesia

Any reports and responses or comments on the article can be found at the end of the article.



This article is included in the **Research Synergy**
Foundation gateway.

Corresponding authors: Senida Harefa (senida.harefa@gmail.com), Grace Lamudur Arta Sihombing (graceshbg@gmail.com)

Author roles: **Harefa S:** Conceptualization, Formal Analysis, Methodology, Writing – Original Draft Preparation, Writing – Review & Editing; **Sihombing GLA:** Conceptualization, Writing – Original Draft Preparation, Writing – Review & Editing

Competing interests: No competing interests were disclosed.

Grant information: Institut Agama Kristen Negeri Tarutung 025-05.2.552755/2020

The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Copyright: © 2021 Harefa S and Sihombing GLA. This is an open access article distributed under the terms of the **Creative Commons Attribution License**, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

How to cite this article: Harefa S and Sihombing GLA. **Students' perception of online learning amidst the Covid-19 pandemic: A study of junior, senior high school and college students in a remote area [version 1; peer review: 1 approved, 1 approved with reservations]** F1000Research 2021, **10:867** <https://doi.org/10.12688/f1000research.52152.1>

First published: 27 Aug 2021, **10:867** <https://doi.org/10.12688/f1000research.52152.1>

Introduction

The COVID-19 pandemic has had a major impact on various aspects of peoples' lives, namely in the economic, socio-cultural, and educational aspects. It is a global problem affecting educational institutions. Since the start of this pandemic, it has caused shock and disruption to students. The pandemic has forced schools to close and lessons that were carried out face-to-face have shifted to the online world. The use of the Internet and many other significant technologies to create materials for educational purposes, educational distribution, and program management constitute online learning (Fry, 2001). All educators are asked to make a transition, due to the closure of school buildings. There is no other choice but to apply online learning; even though many feel unprepared during this transitional period, students must adjust themselves while trying to build meaning amid various challenges related to the pandemic. Even though learning is carried out online, it is hoped that learning outcomes will remain maximal. There is some evidence that online learning can lead to higher student success (Kurucay & Inan, 2017). A great amount of evidence indicates that there is no substantial difference in the efficacy of well-designed online learning relative to well-designed face-to-face learning (Clark, 2007).

However, the reality is not as expected since not all students respond positively to the implementation of online learning. Today, the majority of colleges and universities still face virtual learning difficulties (Talidong & Toquero, 2020). For example, not all educators and students can use e-learning applications, especially those in remote areas. They feel that they are not optimal in learning. During online learning, they deal with several obstacles such as more assignments that make them feel burdened. This happens since teachers or lecturers in charge assign them two or three tasks for every lesson. Additionally, network connection disturbance in rural areas affects their attendance of online learning. Online learning also influences the students' motivation in doing assignments. Therefore, the objectives of online learning goals are not always achieved effectively. Students who succeed in learning are those who are active and always follow the learning. Parents of students also confirmed that their children were too lazy to learn online. This situation gives a bad picture of the learning attitudes of students.

In Anna Ya Ni's research titled "A profile of MPA students' perceptions of online learning: What MPA students value in online education and what they think would improve online learning experiences", it is suggested that the use of the video chat software Zoom has the greatest potential to improve classes in order to meet student concerns. Zoom is one of the most frequently used applications in online learning to replace conventional face-to-face classes (Ni, Wart, Medina, Collins, Kimberly, & Pei, 2020). The problems associated with online learning, especially in remote areas, motivated the authors to conduct this study. Therefore, this current study aims to identify the reasons why students in remote areas perceive that online learning during the COVID-19 pandemic is not effective.

Literature

The development of information and communication technology at this time provides many benefits for human life, so the mastery of such technology is no longer an option but has become a necessity. Through the existence of Internet networks, the use of technology in the educational environment has opened new avenues for educators; face-to-face learning has been transformed into e-learning or online learning (Bernard *et al.*, 2009). In addition to other electronic media, such as CD-ROM, satellite, and television, some experts classify e-learning as 'education delivered via the Internet', while online education is described as 'education delivered only via the Internet or web-based media' (Lee, 2017). When used interchangeably, online education or e-learning is commonly defined as bridging the space between teachers and students through the use of web-based technology (Ryan & Young, 2015).

The presence of the Internet facilitates human work in many ways, especially in the field of education. The current learning process requires teachers and students to use technology. However, not all students can accept and adapt to these changes. The acceptance of changes in the learning process differs among students. This can be influenced by age, thinking ability, and students' interest in technology. Students of all ages seem to react differently to the practice of online learning, with older students showing greater appreciation. There are still major variations in how learners view their online interactions during learning (Koohang, Paliszkievicz, Nord, & Ramim, 2014). There are also concerns about the online learning environment's efficacy (Hashem, 2011).

Students' seriousness in taking online learning can be assessed by how they participate in ongoing learning. Participation in online learning requires three dimensions, namely cognitive participation, emotional participation, and behavioral participation (Fredricks, Blumenfeld, & Paris, 2004). These three dimensions are explained as follows: (1) Cognitive participation is the cognitive effort of a student to acquire skills in the online learning process. (2) Emotional participation is described as students' positive emotions towards teachers, peers, and online learning. (3) Behavioral participation is participation that is manifested by activities that pay attention to learning when studying online (Jung & Jeongmin, 2018).

Methods

An online-based questionnaire study was conducted in a remote area, North Tapanuli, Indonesia. The main objectives of this study were as follows:

1. To assess students' perception of the effectiveness of online learning during the COVID-19 pandemic using four indicators: 1) Teachers' methods of online learning. 2) Students' convenience in learning online. 3) Motivation to learn online. 4) The effectiveness of online learning.
2. To find out the differences in average perception scores about online learning between three groups of students: 1) Junior high school students. 2) Senior high school students. 3) Students from college in a remote area.

Ethics

This research project was approved by the Research Ethics Committee. Ethical Approval Involving Human Respondent from tertiary education (Approval number: 1437.1/Ikn.01/TL.01/09/2020), from junior high school education (Approval number: 086/SMP-SM/IX/2020), and senior high school education, (Approval number: 422.1/063/SMA N 1TRT/2020). Written informed consent from all subjects involved was obtained for participation in the study and subsequent publication.

Data collection

Primary data was collected through an online survey (see [Table 1](#)). The survey included 20 items on a four-point Likert scale, from 1 (disagree), 2 (neutral), 3 (agree), 4 (strongly agree). The survey was conducted for over a week. Students were asked to participate in a web-based survey. Of the 75 students surveyed, only 30 students submitted their answers to the online survey, namely 10 students from junior high school education, 10 students from senior high school education and 10 undergraduate students from tertiary education. In this case, gender demography is an important factor to be analyzed.

Instrument

Data in this study were collected through the use of questionnaires. Questionnaires consisted of four indicators: 1) Teachers' methods of online learning; 2) Students' convenience in online learning; 3) Motivation to learn online; 4) The effectiveness of online learning. Then the indicators were translated into 20 questionnaire items ([Table 1](#)).

Statistical analysis

Data were collected, coded, checked for completeness and input into [SPSS Version 25](#) IBM (SPSS Statistics, RRID: SCR_019096). [R](#) is an open-source alternative software that can also be used to do the same analysis. Descriptive statistics (frequency, percentage, mean and standard deviation) were used to describe variables. One-way analysis of variance (ANOVA) was used to determine differences in perceptual scores about learning online for junior high school, senior high school, and college students. In all experiments in this report, we applied an alpha level of .05.

Results

Based on the results of the calculation of the data obtained, the value of each questionnaire indicator was as follows: The teacher's method in online learning (score = 89.8; average = 2,992; percentage = 74.83%), student comfort in online learning (score = 87.83; average = 2,928; percentage = 73.19%), learning motivation in online learning (score = 86.5; average = 2.883; percentage = 72.08%), effective online learning (score = 85.33; average = 2.846; percentage = 71.11%). After being calculated, the average percentage score = 72.96%. So, based on the hypothesis H1: $p \geq 85\%$ (effective), H0: $p \leq 85\%$ (less effective) indicates that students' perceptions towards online learning in remote areas are less effective ([Table 2](#)).

The conditions that must be met to process data in a One-way ANOVA test are the data must be normally distributed, and the variance must be homogeneous. After our data were processed, the normality test met the first of these requirements, namely, a significance value of .103 > 0.05 (Shapiro-Wilk) thus the data was declared to be normally distributed ([Table 3](#)).

Results of the homogeneity of variance test obtained a significance value of .093 > 0.05. Thus, we can be confident that our data distribution was homogeneous ([Table 4](#)).

The output in the descriptive section shows the average value of students' perceptions about online learning: student at junior high school (mean) = 58.10, student at senior high school (mean) = 55.30 and college student (mean) = 61.70. The highest score stating that online learning is less effective than face-to-face learning is that of college students, $n = 30$, 95% confidence interval for mean, total min = 48 and max = 73 ([Table 5](#)).

Table 1. Questionnaires (research data survey instruments).

Item	No. Item	Indicator perception
Obtain and find out the teaching materials/learning materials delivered by the teacher/lecturer when studying online. Good	1-5	Teacher’s methods in online learning
Understanding of the material presented by the teacher/lecturer when studying online studied		
Can re-describe the material that has been online by the teacher/lecturer on time		
Responding to questions that appear in discussion forums of subject matter provided by the teacher/lecturer during online learning		
Apply the subject matter delivered by the teacher/lecturer in everyday life		
Can communicate smoothly with the teacher/lecturer during online learning	6-11	Students’ convenience in online learning
Can ask directly to the teacher/lecturer when I don’t understand the subject matter during online learning		
Always get a good response from the teacher/lecturer during online learning		
Enjoy doing assignments given by the teacher/lecturer on online learning		
Feel comfortable because the teacher/lecturer always understands the obstacles experienced when learning online (for example network barriers and data packets)		
Active in following class discussion forums created by the teacher/lecturer during online learning	12-17	Learning motivation in online learning
Always on camera during online learning		
Pay attention when teacher/lecturer provides learning explanations during online learning		
Participate in discussion group study assignments formed by the teacher/ lecturer		
Submit assignments given by the teacher/lecturer on time		
Learn guidelines about learning online from the internet		
Sit calmly during online learning in front of the laptop/cellphone until the time set by the school/teacher/lecturer elapses		
Likes online learning rather than face-to-face learning	18-20	The effective online learning
The interaction of online teaching and learning is better than face-to-face learning		
Online learning facilities always support, both in terms of equipment (for example mobile/laptop) or network.		

The ANOVA output in the descriptive section shows sum of squares total = 724,967; df = 29; mean square = 102,933 and 19.226; F = 5.354 and a significance value of 0.011 < 0.05, meaning that the average value of student perceptions of the three levels of education about online learning is not significantly different. Students as a whole report the same perception that online learning is less effective in a remote area (Table 6).

Then, the authors conducted a follow-up ANOVA test using Duncan’s test to determine the perceived significance value between junior high school with senior high school students and senior high school with college students. Duncan’s test results have two subsets, namely in the first subset, the significance value was 0.077 > 0.005 of senior and junior high school students’ perceptions, meaning that their perceptions about online learning are not significantly different. In the second subset, the significance value was 0.165 > 0.05 of senior high school and college students’ perceptions, meaning that their perceptions about online learning were also not significantly different. So, the results of Duncan’s test concluded that there was no significant difference between students’ perceptions of online learning, meaning that they had the same perception (Table 7).

In this study, more male students answered that online learning was less effective than female students. The result of data calculation showed that the frequency of male students’ answers was 66.7%, while the frequency of female students’ answers was 33.3% (Table 8).

Table 2. Frequency of respondent statistics.

No	Item	1	2	3	4	N	Score	Mean	%	Category
Teacher's methods in online learning										
1	Obtain and find out the teaching materials/learning materials delivered by the teacher/lecturer when studying online. Good	0	0	11	19	30	109	3.63	90.83%	Effective
2	Understanding of the material presented by the teacher/lecturer when studying online studied	1	5	18	6	30	89	2.97	74.17%	Less effective
3	Can re-describe the material that has been online by the teacher/lecturer on time	2	4	17	7	30	89	2.97	74.17%	Less effective
4	Responding to questions that appear in discussion forums of subject matter provided by the teacher/lecturer during online learning	3	5	21	1	30	80	2.67	66.67%	Less effective
5	Apply the subject matter delivered by the teacher/ lecturer in everyday life	4	5	16	5	30	82	2.73	68.33%	Less effective
Students' convenience in online learning										
6	Can communicate smoothly with the teacher/lecturer during online learning	1	2	15	12	30	98	3.27	81.67%	Less effective
7	Can ask directly to the teacher/lecturer when I don't understand the subject matter during online learning	0	3	18	9	30	96	3.20	80.00%	Less effective
8	Always get a good response from the teacher/lecturer during online learning	4	3	16	7	30	86	2.87	71.67%	Less effective
9	Enjoy doing assignments given by the teacher/lecturer on online learning	4	7	16	3	30	78	2.60	65.00%	Less effective
10	Feel comfortable because the teacher/lecturer always understands the obstacles experienced when learning online (for example network barriers and data packets)	1	9	15	5	30	84	2.80	70.00%	Less effective
11	Active in following class discussion forums created by the teacher/lecturer during online learning	1	8	16	5	30	85	2.83	70.83%	Less effective
Learning Motivation in online learning										
12	Always on camera during online learning	2	7	17	4	30	83	2.77	69.17%	Less effective
13	Pay attention when teacher/ lecturer provides learning explanations during online learning	1	4	22	3	30	87	2.90	72.50%	Less effective
14	Participate in discussion group study assignments formed by the teacher/ lecturer	2	6	17	5	30	85	2.83	70.83%	Less effective
15	Submit assignments given by the teacher/lecturer on time	1	3	16	10	30	95	3.17	79.17%	Less effective

Table 2. *Continued*

No	Item	1	2	3	4	N	Score	Mean	%	Category
16	Learn guidelines about learning online from the internet	1	12	15	3	30	81	2.70	67.50%	Less effective
17	Sit calmly during online learning in front of the laptop/cellphone until the time set by the school/ teacher/lecturer elapses	0	5	22	3	30	88	2.93	73.33%	Less effective
Effective online learning										
18	Likes online learning rather than face-to-face learning	0	9	16	5	30	86	2.87	71.67%	Less effective
19	The interaction of online teaching and learning is better than face-to-face learning	3	9	15	3	30	78	2.60	65.00%	Less effective
20	Online learning facilities always support, both in terms of equipment (for example mobile/laptop) or network.	0	7	14	9	30	92	3.07	76.67%	Less effective
Mean									72.96%	Less effective

1 (disagree), 2 (neutral), 3 (agree), 4 (strongly agree), percentage (%) of respondent's answer frequency.

Table 3. Test of normality.

Tests of normality						
SKOR	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
	0.166	30	0.034	0.942	30	.103

^aLilliefors significance correction.

Table 4. Test of homogeneity of variances.

		Levene statistic	df1	df2	Sig.
Perception	Based on mean	2,679	2	27	.087
	Based on median	2,272	2	27	.122
	Based on median and with adjusted df	2,272	2	21 880	.127
	Based on trimmed mean	2,594	2	27	.093

Table 5. Descriptive statistics for variables.

Descriptives								
Perception								
	N	Mean	Std. deviation	Std. error	95% confidence interval for mean		Min	Max
					Lower bound	Upper bound		
Junior high school	10	58.10	3,814	1206	55.37	60.83	48	61
Senior high school	10	55.30	2,710	.857	53.36	57.24	51	61
College	10	61.70	5,982	1892	57.42	65.98	54	73
Total	30	58.37	5,000	.913	56.50	60.23	48	73

Table 6. ANOVA calculation results.

Perception					
	Sum of squares	df	Mean square	F	Sig.
Between Groups	205.867	2	102.933	5.354	.011
Within Groups	519.100	27	19.226		
Total	724.967	29			

Table 7. Advanced test of ANOVA (perception of Duncan about student perception).

Perception of Duncan			
Education level	N	Subset for alpha = 0.05	
		1	2
Junior high school	10	55.30	
Senior high school	10	58.10	58.10
College	10		61.70
Significant		.077	.165

The means of groups in homogeneous subsets are displayed.
Uses harmonic mean sample size = 10,000.

Table 8. Table frequency of response by gender.

Gender					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	Male	20	66.7	66.7	66.7
	Female	10	33.3	33.3	100.0
	Total	30	100.0	100.0	

Discussion

The overall mean score obtained in this study $p = 72,96\%$ thus ($H_0: 72,96\% \leq 85\%$) indicates that students' perception of online learning in remote areas is that it is less effective than face-to-face learning. The resulting score needs to be improved for the achievement of learning objectives. The indicators used to recruit perception data include the following:

1. Teacher teaching methods in online learning

The use of effective learning methods or strategies can improve student academic achievement (Donker *et al.*, 2013). Implementing learning, teachers must consider the use of teaching methods. The methods used should vary. Nowadays, technology offers a variety of learning methods that facilitate students to learn and do the assignments conveniently (Pasaribu *et al.*, 2020). The application of various teaching methods can create creativity in learning and can eliminate boredom in students. There are five items regarding teaching methods, namely knowing, understanding, responding, describing and applying. The five items are inputs for the teachers so that they can design and review the online learning that has been implemented so far. The purpose of learning is to instill knowledge in students; whether good or not, students' acceptance of the material presented depends on the method used by the teacher in learning. This also cannot be separated from the teacher's own knowledge. The more knowledgeable a teacher is, the better he or she will be in conveying learning to their students.

2. Comfort of students in online learning

The results of this study stated that students are less comfortable with online learning. The feeling of inconvenience represents dissatisfaction. For example, communicating with teachers is often hampered by unstable networks, and

abilities in using the technology are still limited resulting in delays in joining lessons. Another regrettable thing is that most teachers do not understand the barriers that prevent the start of online learning or that affect it while it is ongoing. This may affect the effectiveness of online learning. In response to this, it is necessary to implement blended learning in the future, which combines online learning with traditional physical classroom teaching. It aims to enlarge the learning method in education areas. During the pandemic, the implementation of blended learning might occur in certain remote areas in Indonesia. The pandemic situation could be controlled because of the less density of population in remote areas and also by the strict application of health protocols: washing hands frequently, wearing masks all the time, and keeping a distance from one another (Garrison & Kanuka, 2004).

3. Learning Motivation in online learning

Motivation is the most important factor in learning. Motivation affects the achievement of student learning success and serves as an impetus to carry out learning activities. There are two types of learning motivation. The first is extrinsic motivation, which refers to all factors from outside that play a role in achieving learning goals such as facilities, teachers, and the process of implementing the learning. And intrinsic motivation is a factor from the students themselves such as interest, feelings of pleasure, and desire (Ryan & Deci, 2000). According to students in remote areas, online learning is less able to motivate students to learn. This is evidenced by students' answers to the survey questions provided by the researchers. Students are not enthusiastic about online learning; they do not do assignments and do not submit assignments within the time that has been determined; they do not do study groups without the assistance of their teacher. This could be due to inadequate facilities, exhausted Internet packages or even students who cannot afford packages, and bad Internet network infrastructure. All these can cause a lack of motivation to learn in students. In summary, situations like this have a major impact on the way students learn and can lead to disappointing performance.

4. Effective online learning

In this era, technology offers several advantages to assist human mobility practically. Besides, it also supports human communication and its efficiency, particularly the existence of cellular technology to facilitate rapid human connectivity (Song, Karimi, & Kim, 2015). During the COVID-19 pandemic, all schools in Indonesia used the Internet network to send messages to students (online learning). In other words, online learning tools that include technology support the independent learning process (Dunlap & Lowenthal, 2011). However, in using technology, it is also necessary to consider students' perceptions. The results indicate that students in remote areas better recognized the effectiveness of face-to-face learning. As the aforementioned results related to the indicators suggest, students had several obstacles during online learning. The transformation of face-to-face into online learning affects the students' learning process badly, for instance, the limitation of social interaction. In this case, the teacher is encouraged to think seriously about creative solutions to this problem to reach the teaching goals.

From the frequency data, it is known that the response frequency was 66.7% by males and 33.3% by females, meaning that males responded more that online learning was not effective. Based on the results of data frequency, it is known that women's motivation to learn online exceeds that of men. This is evident from the response of women to the tasks given by the teacher. In doing the tasks, women are much more disciplined than men. Also, women turn in assignments on time.

The COVID-19 pandemic presents an extraordinary situation worldwide, this situation affects the implementation of learning in schools. Face-to-face teaching and learning interactions turn to the online world. Given that not all students respond positively to online learning, each institution needs to prepare well for designing interesting learning media, and designing modules that are more flexible, making adjustments such that students adapt to changes in the teaching, learning and assessment, both face-to-face and online (Ansari *et al.*, 2021).

Conclusions

According to the previous explanations, students generally have more fun when learning is done face-to-face. With face-to-face learning, students can directly get answers to their curiosity about the material being studied. After conducting this research, the assumptions about the displeasure or reduced effectiveness of online learning in this area were proved correct and significant. Times have changed. With the COVID-19 pandemic, students and teachers are required to use technology in learning since learning must now be done remotely to prevent crowds from gathering, to break the chain of the pandemic. Willingly or unwillingly, online learning must be practiced. However, this is also a call for the government to improve Internet networks and infrastructure in remote areas in order to facilitate online education.

The results of this research indicate that online learning is less effective according to the perception of students in remote areas. So, educators are expected to redesign and implement procedures for online learning so that students can still learn as much as possible. From the teacher's side, it is hoped that teachers will improve methods of teaching, by designing models and other approaches to provide variation in learning in order to raise students' interest and willingness to learn online. To achieve higher levels of academic success, teachers must ensure there is a complete curricular plan that is tailored to goals, avoiding a large number of student burdens that are practically impossible to meet (Oliveira & Magalhães, 2020).

The results of this research provide additional insight to all those involved in the implementation of education. However, further research is needed to obtain a more complete explanation.

Data availability

Underlying data

Figshare: Data survey about the effectiveness of online learning. <https://doi.org/10.6084/m9.figshare.14191622.v1>. (Harefa and Sihombing, 2021).

This project contains the following underlying data.

- Research Data.xlsx (Questionnaire data in Microsoft Excel format)

Data are available under the terms of the [Creative Commons Zero "No rights reserved" data waiver](#) (CC0 1.0 Public domain dedication).

References

- Ansari KA, Farooqi F, Khan SQ, *et al.*: **Perception on Online Teaching and Learning Among Health Sciences Students in Higher Education Institutions during the COVID-19 Lockdown – Ways to Improve Teaching and Learning in Saudi Colleges and Universities.** *F1000Res.* 2021; 1–15.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
- Bernard RM, Abrami PC, Borokhovski E, *et al.*: **A Meta-Analysis of Three Types of Interaction Treatments in Distance Education.** *Rev Educ Res.* 2009; 1243–1289.
[Publisher Full Text](#)
- Carr S: **As Distance Education Comes of Age, the Challenge Is Keeping the Students.** *Chron High Educ.* 2000; 39–41.
- Clark RE: **Reconsidering Research on Learning from Media.** *Rev Educ Res.* 2007; 445–459.
[Publisher Full Text](#)
- Donker AS, Boer Hd, Kostons D, *et al.*: **Effectiveness of Learning Strategy Instruction on Academic Performance: a Meta-Analysis.** *Educ Res Rev.* 2013; 1–26.
[Publisher Full Text](#)
- Dunlap JC, Lowenthal PR: **Learning, Unlearning, and Relearning: Using Web 2.0 Technologies to Support the Development of Lifelong Learning Skills.** In: *E-Infrastructures and Technologies for Lifelong Learning: Next Generation Environments.* USA: IGI Global; 2011; (pp. 292–315).
- Fredricks JA, Blumenfeld PC, Paris AH: **School Engagement: Potential of the Concept, State of the Evidence.** *Rev Educ Res.* 2004; 59–109.
[Publisher Full Text](#)
- Fry K: **E-learning markets and providers: some issues and prospects.** *Inf Discov Deliv.* 2001; 233–239.
[Publisher Full Text](#)
- Garrison DR, Kanuka H: **Blended learning: Uncovering its transformative potential in higher education.** *Internet High Educ.* 2004; 95–105.
[Publisher Full Text](#)
- Hashem ME: **The role of new information technology in education and development: A case study of building trust in distance education.** *Int J Arts Sciences.* 2011; 387–398.
- Jung Y, Jeongmin L: **Learning engagement and persistence in massive open online courses (MOOCs).** *Comput Educ.* 2018; 122(7): 9–22.
[Publisher Full Text](#)
- Koohang A, Paliszkievicz J, Nord JH, *et al.*: **Advancing a theoretical model for knowledge construction in e-learning.** *Online J Applied Knowledge Management.* 2014; 12–25.
- Kramer RM: **Trust and distrust in organizations: Emerging Perspectives. Enduring Questions.** *Annu Rev Psychol.* 1999; 569–598.
[Publisher Full Text](#)
- Kurucay M, Inan FA: **Examining the effects of learner-learner interactions on satisfaction and learning in an online undergraduate course.** *Comput Educ.* 2017; 115: 20–37.
[Publisher Full Text](#)
- Lee K: **Rethinking the accessibility of online higher education: A historical review.** *Internet High Educ.* 2017; 15–23.
[Publisher Full Text](#)
- Luhmann N: *Familiarity, Confidence, Trust: Problems and Alternatives.* University of Oxford: Electronic edition, Department of Sociology, chapter; 2000; 6: 94–107.
- Maltby JR, Whittle J: **Learning Programming Online: Student Perceptions and Performance.** *ASCILITE 2000 Conference.* 2000.
- Ni AY, Wart MV, Medina P, *et al.*: **A profile of MPA students' perceptions of online learning: What MPA students value in online education and what they think would improve online learning experiences.** *J Public Affairs Education.* 2020; 1–23.
[Publisher Full Text](#)
- Oliveira RJ, Magalhães T: **Teaching and learning based on peer review: a realistic approach in forensic sciences.** *F1000Res.* 2020; 1–7.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
- Pasaribu AG, Harefa S, Sihombing GL, *et al.*: **Development Application of Web-Based Management of Scientific Work and Teaching Materials During the Covid-19 Pandemic.** *Solid State Technol.* 2020; 1–17.
- Ryan TG, Young CD: **Online (Distance) Education: Evolving Standards.** *J Technologies Education.* 2015; 15–30.
[Publisher Full Text](#)
- Ryan RM, Deci EL: **Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions.** *Contemporary Educational Psychol.* 2000; 54–67.
[Publisher Full Text](#)

Sims R: **Rethinking (e)learning: a manifesto for connected generations.** *Distance Education*. 2008; 153-164.
[Publisher Full Text](#)

Song D, Karimi A, Kim P: **A Remotely Operated Science Experiment framework for under-resourced schools.** *Interactive Learning*

Environments. 2015; 1706-1724.

[Publisher Full Text](#)

Talidong KJ, Toquero CM: **Philippine Teachers' Practices to Deal with Anxiety amid COVID-19.** *J Loss Trauma*. 2020: 1-8.

[Publisher Full Text](#)

Open Peer Review

Current Peer Review Status: ? ✓

Version 1

Reviewer Report 08 December 2021

<https://doi.org/10.5256/f1000research.55388.r93012>

© 2021 Rachmadtullah R. This is an open access peer review report distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



Reza Rachmadtullah 

Department of Elementary School Teacher Education, Universitas PGRI Adi Buana, Surabaya, Indonesia

Overall, the authors have done a great job. It is a very important topic under the current circumstances. I do not think that the authors need to include the title of Anna Ya Ni's research in this article. There is general relevant information regarding e-learning during Covid-19 and is very current. In this study, it is better to add the latest references related to the research objectives in the discussion section. In the conclusion of this study, the authors should add a paragraph about the implications and usefulness of the results in this study.

Is the work clearly and accurately presented and does it cite the current literature?

Yes

Is the study design appropriate and is the work technically sound?

Yes

Are sufficient details of methods and analysis provided to allow replication by others?

Yes

If applicable, is the statistical analysis and its interpretation appropriate?

Yes

Are all the source data underlying the results available to ensure full reproducibility?

Yes

Are the conclusions drawn adequately supported by the results?

Yes

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Reviewer Report 20 September 2021

<https://doi.org/10.5256/f1000research.55388.r94627>

© 2021 Gao X. This is an open access peer review report distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



Xuesong (Andy) Gao 

School of Education, University of New South Wales, Sydney, NSW, Australia

In the abstract, I am unsure if the changes brought by the pandemic were aimed to make the learning process more effective. I think that the background section needs to explain why the study needed to examine the students' perceptions. I am not sure if 30 students were sufficient to examine the perceptions of students related to online learning at the three levels. The results are not particularly surprising. Since the number of participants in the study is quite small, I was wondering if the authors can make robust claims about the findings and these findings have significant implications for practice.

Introduction: I suggest that the authors summarize what was found in studies on students during the pandemic. A large number of studies have been published on the topic but it is true that not much was done in relation to students in remote areas. I do not think that the authors need to include the details of Anna Ya Ni's research (I mean, the article title).

Literature review: Why do the authors talk about students' seriousness in online learning? Not their commitment, engagement, or motivation? The literature review really needs to elaborate on why we need a study on students' perceptions. It should also motivate the research questions to be addressed in the study.

Can the authors explain their methodological decisions? I appreciate the challenge in collecting online responses. But I think that the authors need to acknowledge that the number of participants is a serious limitation. The authors may need to explain why the data were analyzed in the way reported in the manuscript. How do the collection and analysis of data correspond to the research questions? I think that we need an explicit alignment between research questions and data collection/analysis.

I also suggest that the authors presented the results as answers to the research questions. This means that they can use the research questions to organize the presentation of findings. I am not sure if the authors need to follow APA to format the statistical reporting. I also feel that the authors need to explain what these statistical results mean. The manuscript has a lot of tables but it is better for the authors to engage with them and interpret the results for readers (as responses to the research questions).

While the discussion has important themes, I feel that the authors need to highlight the

contributions that the study has made to the field. In what sense do they add to what we have already known about the topic? Then they can talk about what implications we can draw from the findings.

I feel that the authors need to discuss the study's methodological limitations.

Is the work clearly and accurately presented and does it cite the current literature?

Partly

Is the study design appropriate and is the work technically sound?

Partly

Are sufficient details of methods and analysis provided to allow replication by others?

Partly

If applicable, is the statistical analysis and its interpretation appropriate?

Partly

Are all the source data underlying the results available to ensure full reproducibility?

Yes

Are the conclusions drawn adequately supported by the results?

Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: education

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

The benefits of publishing with F1000Research:

- Your article is published within days, with no editorial bias
- You can publish traditional articles, null/negative results, case reports, data notes and more
- The peer review process is transparent and collaborative
- Your article is indexed in PubMed after passing peer review
- Dedicated customer support at every stage

For pre-submission enquiries, contact research@f1000.com

F1000Research