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COLLEGE STUDENT ENGAGEMENT DURING ONLINE LEARNING: DESCRIPTIVE STUDIES DURING COVID-19 PANDEMIC

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ABSTRACT

During the Covid-19, one of the sectors that was affected was the education sector. The learning system that was originally face-to-face must switch to online learning in a short time to prevent spread of Covid-19. Lack of experiences about available platform resources and the readiness of individuals to face this situation make changes. Starting from difficulties in accessing learning due to poor signal, turning off the camera, being less active, and decreasing social relations with friends and lecturers. The aim of this study is to provide an overview of college student engagement during online learning in times of the Covid-19 pandemic. This research will be conducted as qualitative research with research participants that are college students on the island of Java. The measuring instrument used in this study is Student Engagement Instruments developed by Appleton and adopted by Waldrop to be college version. This research was conducted from January until February 2022, by obtaining a research sample of 246 respondents aged 18 to 25 years. The results of the study show that participants have a different college student engagement with a few demographic data such as sex, class, and duration of offline learning. Also, with a multiple responses test have many outputs based on advantages of online learning such as saving time, study anywhere, cost-effective, and many more.

Keywords: *College students, covid-19, college student engagement, online learning*

1. PREFACE

At the end of 2019, a virus emerged that spread very quickly. Corona Virus Disease 2019 (Covid-19) is a virus that attacks the respiratory area with symptoms of fever, cough, bone pain, difficulty breathing, and eventually leads to pneumonia [1]. The whole world has been ravaged by this virus, starting with health being attacked, face-to-face meetings have become impossible, and human daily activities have become very limited. Now, humans are forced to quickly adapt to this new situation without warning or preparation. With many cases of Covid-19 that have spread throughout the world, Indonesia is one of the countries that feels the wave of Covid-19. The first case in Indonesia emerged in March with two people who were confirmed positive [2].

The emergence of Covid-19 has had a huge impact on various fields of human life. In this study, the researcher wants to focus on one of the fields that has a very large and important role in human life, namely education. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), around 80% of students worldwide have been affected by COVID-19. Even after a year has passed, students around the world are still affected by partial or complete school closures. In Indonesia alone, UNESCO reported that Indonesia experienced partial school closures affecting 68,265,782 people [3].

In the field of education, the main impact of Covid-19 is the transition of the traditional learning system with face-to-face being forced to adapt in a short time to online learning. With changes in the education system, the affected parties are not only students but also lecturers, employees, and parties working at the University. In online learning, institutions certainly have to face difficulties

by determining the most appropriate technology and adaptation methods so that student learning remains optimal [4]. It doesn't just stop there, the learning environment and atmosphere that should be effective and mutually supportive with lecturers and friends in lectures becomes only at home alone. As is well known, home cannot be a supportive place for most of the time students should use to study well. Distractions that arise at home will be more numerous and more difficult to control than on campus.

The challenges and difficulties during online learning are faced by students all over the world. In India, which has a developing country status and low economy like Indonesia, it faces difficulties, namely not all students have the ability to fulfil the use of technological devices for learning. In addition, students in India also find it difficult to study in a conducive manner. This is because not all students have the same self-regulation [4]. In the United States, it is stated that students lose the social aspect of education which is one of the supports for their engagement [5]. In Hong Kong, students feel unfamiliar with online platforms and lack the ability to understand and adapt to online learning [6].

Apart from the presentation of students in several countries who have experienced the effects of Covid-19 in the field of education, the researchers also found the same thing for students through personal communication and observation. The students stated that they prefer offline learning. This conclusion was drawn up by various factors, starting from conditions at home that were not conducive, such as being too noisy or having household members asking for help, thereby eliminating focus. Not having to open the camera in class coupled with the unwillingness of students to open the camera. Furthermore, following lectures only from the room while lying in bed. All of these conditions make students less focused on listening to lecturers and activity in class decreases. The interaction between lecturers and students also decreased in class. An unstable signal is also an obstacle to listening carefully to the material. Working on the task feels heavy and is followed by a sense of laziness because it is only at home. At home also do not have friends or an environment that can spur students to do assignments efficiently and effectively. Intention and desire to do the task earlier also decreased. Outside of learning, communication with lecturers is also easier when offline. In online learning, students are not comfortable contacting lecturers, let alone having to go through private numbers. Relationships with friends feel more fun when they meet face to face.

In line with the various conditions described above, student engagement is a challenge that must be faced due to the transition to online learning as an adaptation action to Covid-19 [7]. This is also supported by Lee et al. [8] that "students tend to be less engaged in e-learning than face-to-face learning because there is less interaction between students and teachers". Appleton et al. [9] stated that student engagement is considered to be something that requires more attention when in higher education. In this study, researchers wanted to know the description of college student engagement in students affected by the transition to online learning due to Covid-19.

This research is expected to be able to contribute, especially in providing information for students to better understand college student engagement during online learning. By understanding, students can do self-introspection and improve performance in lectures. For lecturers, the results of this research can provide new insights. The lecturers can think of the most appropriate learning system and model.

The rest of the paper is organized as follows. Section 2 introduces the preliminaries foundation theory used in this paper, which include college student engagement and the dimensions. Section

10.24912/ijassh.v1i2.27776

3 explain about method, procedure, research instruments, measurement, and explanation based on demographic data. Then, the findings, discussion, and hypothesis testing will be stated in Section 4. Finally, Section 5 was the conclusion about this research and suggestion about others research ahead.

According to Kuh [10], student engagement is the availability of students to invest time and effort in carrying out an activity because it has the aim of getting good results in lectures. According to Axelson and Flick [11] define student engagement as the level of interest or involvement of students to be active in learning and connectedness with the class. Frederick et al. [12] defines "student engagement as a meta-construct that includes behavioral, emotional, and cognitive engagement". Similar to Frederick's definition, student engagement is a construct characterized by attentive behavior towards tasks, positive mood, and enjoyment of class [13].

The next definition of student engagement comes from Appleton et al. [9] which states that the relationship of students both behaviorally and cognitively to school assignments, fellow friends, and school will produce good learning outcomes. The workers engaged in education have also long realized the importance of the role of student engagement. Student engagement can occur at all levels of education including the university level. Meanwhile, the higher the level of learning, the greater the challenge of student engagement. Students try to maintain engagement while studying in the midst of increasing activities and assignments. So, based on the definition that has been described, college student engagement is a sense of student engagement in carrying out their learning in terms of academics (expecting good learning outcomes), emotional (curiosity and a pleasant feeling in participating in class), cognitive (having good self-regulation skills, challenges in learning), and behavior (full attendance and active involvement in class).

According to Appleton et al. [14] as the theoretical basis of the measuring instrument used in this study, there are four dimensions of college student engagement, namely behavioral engagement, emotional engagement, cognitive engagement, and academic engagement. A student can be engaged behaviorally if he has participation, effort, and a great intention to be active and involved in the learning process and activities on campus [15]. Behavioral engagement can be defined in three ways [12]. First, this definition refers to student behavior that is obedient to both school rules and class rules such as attending class, doing assignments, and not creating procrastination problems [16]. The second definition refers to behaviors that are shown to show their presence in the classroom such as actively asking questions, trying to do assignments, answering questions, paying attention, accuracy in collecting assignments, and concentration [9]. The third definition refers to active behavior to participate in activities or events on campus.

According to Appleton et al. [14], academic engagement consists of activities that lead to academic results. The activities in question are the accuracy of task collection, homework assignments, and the accumulation of Semester Credit Units (SKS). All behaviors related to academics and their level of completion are included in academic engagement [16]. In this dimension, all behaviors or activities described can still be observed directly.

According to Fredericks et al. [12], the discussion of emotional engagement is closely related to the mood and emotions of students during lectures. Emotions that include emotional engagement are interest, boredom, happiness, sadness, and worry. Both academic and non-academic activities are followed by a high sense of interest, a sense of being considered a member of a community,

and a sense of enjoyment and without coercion in participating in all these activities [17]. In this dimension there is also a discussion of students' social relationships with teachers and peers [16].

The discussion in the cognitive engagement dimension leads to the future orientation of students. Students like the challenges given in every academic and non-academic activity from lectures. Students do more than set standards and continue to expect challenges [17]. In cognitive engagement, the discussion is about students' coping methods when experiencing difficulties, goal-setting, values that underlie students' attitudes and behavior [12], [14]. The topic of discussion in this dimension cannot be observed directly because it comes from each individual. The discussion includes the purpose of life and the values adopted in life [16]. These are the four dimensions contained in student engagement.

As a result of the Covid-19 pandemic, there are not many people in a gathering. Thus, universities create learning alternatives with fully or partially online learning. According to Means at al. [18], "online learning is defined as learning that is done partially or completely with the internet". Another definition from Ally [19] which says that online learning is learning whose instructions are displayed through a computer with a virtual audience. Online learning is another form of distance learning that provides material and its interactions using more modern technology [20]. So, based on the previous explanation, the definition of online learning is a new way of learning that replaces the traditional face-to-face method with learning using technology and the internet.

2. RESEARCH METHOD

The characteristics of the participants in this study were: (a) male and female; (b) active students; (c) pursue bachelor's degree; (d) currently undergoing lectures with an online learning system; (e) having experience in offline learning or at least have studied at college for more than 2 years; and (f) study or domicile on Java Island.

The age of the participants has criteria that are determined based on the age of 18-25, the standardized age for college students.

This research is not limited to a particular religion or ethnicity. This study involved 246 participants as a research sample for college student engagement during the Covid-19 pandemic. Cohen at al. [21] stated that minimum amounts of participants that is eligible to be considered as research, is thirty.

This research is quantitative descriptive research that focuses on the explanation of experiences based on the variables studied in participants. The sampling technique in this research is non-probability sampling named purposive sampling and snowball sampling. Purposive sampling is a sampling technique that allows researchers to obtain as much information as possible from participants in accordance with the characteristics that were compiled previously [22]. Therefore, purposive sampling is also known as criterion base selection. In addition, there is snowball sampling, because researchers distribute surveys from one participant to other recommended participants. Researchers distributed Google Forms from January 2022 to early February 2022. Data collection was done through a survey using Google Form containing measuring tools and open-ended questions. Processing and analyzing data using the Statistical Product and Service Solution (SPSS) software version 24.0 for windows.

The description of participants in this study refers to sex, age of participants, class of college, birth order, duration of online learning, duration of offline learning, and platform online. Based on sex,

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out of the 246 participants who filled out the online survey, there were 81 male participants and 165 female participants. As you can see there are more female than male participants. This can be seen in Table 1.

Table 1
Description of Participants by Sex

Sex	Frequency	Percentage (%)
Male	81	32.9
Female	165	67.1
Total	246	100.0

Based on data obtained from a total of 246 participants who filled out the online questionnaire, there was an age range between 18-25 years. The researchers grouped the ages of the participants into four categories, namely 18-19 years with 65 people, 20-21 with 141 people, 22-23 with 34 people, and 24-25 with a total of 5 people. More details about the total participants by age group can be seen in Table 2.

Table 2
Overview of Participants by Age Group

Age Group	Frequency	Percentage (%)
18-19	65	26.5
20-21	141	57.6
22-23	34	13.9
24-25	5	2.0
Total	246	100.0

With regard to college student participants, the class is something that cannot be left behind. Based on 246 participants who filled out the online survey, there are 4 classes of students who are still actively studying both online and offline. In the class of 2017, there are a total of 8 people (usually extenders). In the class of 2018, there are a total of 66 people. In the class of 2019, there are a total of 68 people. the last, in the batch of 2020 there are a total of 104 people. More details can be seen in Table 3.

Table 3
Overview of Participants by Class

Class	Frequency	Percentage (%)
2017	8	3.3
2018	66	26.8
2019	68	27.6
2020	104	42.3
Total	246	100.0

Based on data obtained, a total of 246 participants who filled out online survey, there are 4 categories of child order/status, namely only child, first child, middle child, and youngest child. The highest number is youngest child with a total of 104 people out of 246 participants. But, for the least is only child with 8 people only. For more details, it can be seen in Table 4.

Table 4
Overview of Participants by Child Order/Status

Child Order/Status	Frequency	Percentage (%)
Only child	8	3.3
First child	66	26.8
Middle child	68	27.6
Youngest child	104	42.3
Total	246	100.0

Based on data obtained from a total of 246 participants who filled out the online questionnaire, there was a duration for online learning divided into 3 categories, namely under 1 year, 1-2 years, and more than 2 years. According to the data, with a total of 6 people that have experience online learning for under 1 year. A total of 202 people that have experience online learning for 1-2 years. A total of 38 people that have experience online learning for more than 2 years. The full details can be seen in Table 5.

Table 5
Participant Description Based on Duration of Online Learning

Duration (years)	Frequency	Percentage (%)
Under 1	6	2.4
1-2	202	82.1
More than 2	38	15.4
Total	246	100.0

Based on data obtained from a total of 246 participants who filled out the online questionnaire, there was a duration for offline learning divided into 3 categories, namely under 1 year, 1-2 years, and more than 2 years. According to the data, with a total of 138 people that have experience offline learning for under 1 year. A total of 83 people that have experience offline learning for 1-2 years. A total of 24 people that have experience offline learning for more than 2 years. The full details can be seen in Table 6.

Table 6
Participant Description Based on Duration of Offline Learning

Duration (years)	Frequency	Percentage (%)
Under 1	138	56.3
1-2	83	33.9
More than 2	24	9.8
Total	246	100.0

Based on data obtained from a total of 246 participants who filled out online questionnaires, there are 3 main platform that were simultaneously use by participants. The highest number of people, with a total of 86 people using the three platform which are Zoom, Microsoft Teams, and Google Meet as their platform for online learning. Other than that, the latest number of people, with a total of 4 people using Microsoft Teams and Google Meet as their platform for online learning. This can be seen in full in Table 5.

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Table 7
Participant Overview Based on Online Platform

Start	Frequency	Percentage (%)
Zoom only	52	21.1
Microsoft Teams only	12	4.9
Google Meets only	12	4.9
Zoom, Microsoft Teams	34	13.8
Zoom, Google Meet	46	18.7
Microsoft Teams, Google Meet	4	1.6
Zoom, Microsoft Teams, Google Meet	86	35.0
Total	246	100,0

Measurement

Student Engagement Instrument-College Version (SEI-C)

The Student Engagement Instrument is a measuring tool developed by Appleton et al. (2006) which aims to measure student engagement of grade 3 to grade 12 students at school. Later, this measuring tool was adapted by Waldrop et al. (2018) to Student Engagement Instrument-College version (SEI-C). This measuring instrument consists of 35 items with the 18th item and the 32nd item being reversely coded. This measuring tool is divided into three dimensions, namely emotional engagement, cognitive engagement, and intrinsic motivation.

Based on the consideration of the developer of the measuring instrument that academic and behavioral engagement are observable dimensions while emotional and cognitive engagement are unobservable. Researchers agree with the previous research statement that changes in emotional engagement and cognitive engagement precede changes in the more observable subtypes of engagement: academic and behavioral. This emotional engagement dimension measures the role of relationships with peers, lecturers, and universities. An example of one such item is "My professors are there for me when I need them." This cognitive engagement dimension measures future plans and the extent to which college is important. An example of one of the items is "Learning is fun because I get better at something." This intrinsic motivation dimension is not the main dimension, the goal is to measure college student motivation whether it comes from himself or not. An example of one such item is "I'll learn, but only if the professor gives me a reward."

Table 8
Blueprint of Student Engagement Instrument-College Version

Dimension	Items
Emotional Engagement	1, 2, 4, 5, 6, 7, 10, 12, 14, 16, 20, 21, 22, 23, 24, 27, 29
Cognitive Engagement	2, 8, 9, 11, 15, 17, 19, 25, 26, 28, 30, 33, 34, 35
Intrinsic Motivation	18, 32

In the reliability test of the SEI-C measuring instrument, it has a total of 35 statements consisting of 2 main dimensions and 2 items measuring intrinsic motivation. The following are the results of the reliability test with the coefficient of internal consistency reliability on SEI-C. All of the items with a total correlation value > 0.2, so there are no dropped items. This can be seen in Table 9.

Table 9
Dimensional Reliability Test of Student Engagement Instrument-College Version Measurement Tool

	Initial Reliability	Final Reliability
Items in SEI-C	35	35
Cronbach's alpha	0.914	0.914

3. RESULT AND DISCUSSION

This study aims to provide an overview of college student engagement based on 2 main dimensions and intrinsic motivation.

Based on the data description in Table 10, the highest dimension is emotional engagement and the lowest dimension is intrinsic motivation. Researchers also conducted a normality test using the One-Sample Kolmogorov-Smirnov Test. The results of college student engagement as a whole, p value = 0.082 (> 0.05), so it can be concluded that the data in this study is normally distributed. Meanwhile, based on the results of the college student engagement data analysis for each dimension, it was found that the data were not normally distributed.

Table 10
Overview of Data College Student Engagement

	Minimum	Maximum	Mean	Standard Deviation
Emotional Engagement	24	80	63.674	8.494
Cognitive Engagement	29	56	48.134	5.169
Intrinsic Motivation	2	8	5.581	1.806

Based on the researcher's analysis of sex demographic data using the Independent-Samples t-Test, the results showed that there was no significant difference between men and women in college student engagement.

Table 11
Differences in College Student Engagement Based on Demographic Data

	College Student Engagement		
	F	t	Sig. (2-tailed)
Sex	0.13	-0.974	0.331

Through data processing with One-Way ANOVA due to the demographic data categories on age, generation, child order/status, duration of online learning, duration of offline learning, and online platform is more than 2 categories. The result is known that there are differences in the duration of offline learning. The results obtained that the duration of under one year (Mean = 115.2971) had higher college student engagement than the duration of more than two years (Mean = 109.0417).

Table 12
Differences in College Student Engagement Based on Demographic Data

	F	Sig. (2-tailed)
Age Group	0.242	0.867
Class	1.427	0.235
Child Order/Status	1.320	0.269
Duration of Online Learning	0.813	0.445
Duration of Offline Learning	3.372	0.036
Platform Online	1.521	0.172

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Based on the data processing using Kruskal Wallis-H, the result is known that there are differences in data demographic which is sex. The results obtained that female (Mean = 114.2970) had higher college student engagement than the male (Mean = 112.03188) on cognitive engagement dimension and intrinsic motivation.

Based on the data processing using Kruskal Wallis-H, the result is known that there are differences in data demographic which is class. The results obtained that class of 2019 (Mean = 115.3942) had higher college student engagement than the class of 2017 (Mean = 113.1250), class of 2018 (Mean = 111.4697), and class of 2020 (Mean = 113.7683) on intrinsic motivation. More details can be seen in Table 13.

Table 13
Different Test of College Student Engagement Dimensions with Sex

	H	***Sig. (2-tailed)***
Emotional Engagement	0.016	0.900
Cognitive Engagement	4.046	0.044
Intrinsic Motivation	6.020	0.014

Table 14
Different Test of College Student Engagement Dimensions with Class

	H	***Sig. (2-tailed)***
Emotional Engagement	6.815	0.078
Cognitive Engagement	2.364	0.500
Intrinsic Motivation	10.380	0.016

Based on the data processing using Kruskal Wallis-H, the result is known that there are differences in data demographic which is duration of offline learning. The results obtained that duration under 1 year (Mean = 115.2971) had higher college student engagement than duration 1-2 years (Mean = 112.5542) and duration more than 2 years (Mean = 109.0417) on intrinsic motivation. More details can be seen in Table 15.

Table 15
Different Test of College Student Engagement Dimensions with Duration of Offline Learning

	H	***Sig. (2-tailed)***
Emotional Engagement	5.860	0.053
Cognitive Engagement	2.678	0.262
Intrinsic Motivation	8.487	0.014

Based on open questions that were also asked by researchers in online surveys related to the advantages of online learning, researchers conducted multiple response analyses. Participants had various responses, ranging from saving time because they just sat in front of the device, saving money because there was no need for transportation, learning materials were more complete, and they felt they had more free time during online learning.

Table 16
Results of Multiple Response Analysis of Advantages of Online Learning

		Responses		Percent of Cases
		N	**Percent**	**N**
$Disadvantages(a)	Bad connection	70	15%	28.5%
	Less lecturer interaction	46	9.9%	18.7%
	Less peer communication	41	8.8%	16.7%
	Unsupported devices	13	2.8%	5.3%
	Lazier	43	9.2%	17.5%
	Unfocused	69	14.8%	28%
	Less understand	76	16.3%	30.9%
	Not confident	5	1.1%	2%
	No practical materials	16	3.4%	6.5%
	Overwhelming tasks	10	2.1%	4.1%
	Cost for internet	13	2.8%	5.3%
	Boring	25	5.4%	10.2%
	Ineffective discussion	17	3.6%	6.9%
	Bad health	21	4.5%	8.5%
	Nothing	2	0.4%	0.8%
Total		467	100.0%	189.8%

Based on open questions that were also asked by researchers in online surveys related to the disadvantages of online learning, researchers conducted multiple response analyses stated on the Table 17. Participants had various responses, ranging from they are more way lazy, didn't understand what their professors talking about, bad connection, and because of sitting all day and looking at devices will make eyes and back are not healthy too.

Table 17
Results of Multiple Response Analysis of Disadvantages of Online Learning

		Responses		Percent of Cases
		N	Percent	N
$Advantages(a)	Saving time	84	21.4%	34.1%
	Study Anywhere	70	17.9%	28.5%
	Cost-effective	48	12.2%	19.5%
	More easy material	23	5.9%	9.3%
	Multitasking	28	7.1%	11.4%
	Technology UpToDate	12	3.1%	4.9%
	Refreshing	22	5.6%	8.9%
	Many sources	20	5.1%	8.1%
	Stay safe	7	1.8%	2.8%
	Family Reunion	6	1.5%	2.4%
	Availability material	32	8.2%	13%
	Time management	37	9.4%	15%
	Confident	3	0.8%	1.2%
Total		392	100.0%	159.3%

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4. CONCLUSIONS AND RECOMMENDATIONS

Online learning as a result of the pandemic has made significant changes in the world of education in terms of the offline administration system to online learning. Many factors make up online learning itself, starting from the availability of technology, lecturer capabilities, interaction in class, the material being taught, and connections which are the main capital in online learning. The success of online learning itself is the responsibility of students, lecturers, and universities / faculties [4].

One of the different tests in this study shows that various student responses to online learning are very diverse. Starting from those who support continuing to hold online learning because it saves transportation costs, can study while lying down, no need to get ready, can study anywhere, and the most interesting answers are some participants consider this online learning as healing / relaxing time for themselves from being tired. lectures. If students actually enjoy having online learning held and there is no need for many adaptations and complaints, it is proven by what Appleton et al. [14] which states that if from an emotional point of view, it is fulfilled, the relationship with the peer is still going well, then it affects one of the observable indicators, namely value. There were 23 participants who said that their grades got better and they found the material easier.

However, in different tests in this study, there were also several responses, such as did not like online learning because they did not understand the material being taught, could not focus because of many distractions, devices that had problems as well as the platform used frequently, could not meet friends, and less interaction with lecturers. This is in accordance with research conducted by Thiry and Hug [22] state that students express great anxiety, frustration, and difficulty focusing academically, which for many are exacerbated by their home situation, available resources, and their health and financial condition. Also supported by Khalil et al. [23] who stated that this transition was particularly challenging and frustrating for students and teachers in developing countries with low internet connectivity, limited access to technology, low resources, and lack of financial support. Communication with peers is also an effective way to increase student engagement, but it is a condition that online learning cannot offer [24].

Practical advice that can be given for future research is to be able to explore more about the differences in one's self-confidence, from some of the responses obtained in this research data that some feel more confident meeting people in person but others are more confident in online classes in expressing their opinions. In addition, lecturers can also provide workshops or adapt learning methods that are more interactive in learning.

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