RESEARCH ARTICLE

STUDENT ENGAGEMENT IN THE LEARNING PROCESS THROUGH ZOOM

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ABSTRACT

Online learning through Zoom has become a new reality in education. However, the utilization of technology does not necessarily guarantee effective learning. One crucial factor influencing learning effectiveness is student engagement. Therefore, this study aims to analyze student engagement in the learning process using the Zoom platform based on cognitive, behavioral, and emotional dimensions. This research employed a quantitative descriptive approach with 100 respondents who had participated in online learning via Zoom meetings. Of these respondents, 82% were female, and 18% were male. The research findings revealed that: 1) In terms of cognitive engagement in Zoom meetings, 54% of respondents felt uncomfortable asking questions to the instructor, 83% expressed that a lack of direct interaction with the educator hindered their understanding of the material, and 77% experienced difficulty concentrating during Zoom meetings. 2) Regarding behavioral engagement, 73% of participants took part in quizzes conducted during Zoom classes. In terms of punctuality, 73% arrived on time, and 60% actively asked questions and provided comments during Zoom meetings. 3) Concerning emotional engagement in Zoom learning, 66% of respondents felt a disconnect from the instructor and classmates during Zoom-based learning.

Keywords: *Student Engagement, Learning Process, Zoom*

INTRODUCTION

The development of information and communication technology has brought significant changes to the world of education. One of the most prominent innovations is online learning. Video conferencing platforms like Zoom have become key tools in bridging the distance between educators and students, especially during the COVID-19 pandemic. Several months into the pandemic, in June 2020, more than 700 universities conducted classes *online* using the Zoom platform (Kushlev & Epstein-Shuman, n.d.) This platform offers various features that allow users to hold virtual meetings, webinars, online conferences, and even online classes easily and efficiently, such as video conferences, online whiteboards, and breakout rooms.

Online classes have become a *new normal* in the implementation of current learning. Although learning activities *online* offers a lot of flexibility, there are still many important challenges that must be faced, one of which is *student engagement* (Parija & Bobhate, 2021). Educators, students, and parents also agree that there is a decrease in engagement in the learning process in the classroom *online.* In a survey conducted with 350 students, 80% of respondents admitted that they had difficulty focusing when attending class *online* (Peper, Wilson, Martin, Rosegard, & Harvey, 2021). According to the Covid-19 Task Force

survey, many students experience boredom, anxiety, and feelings of isolation during online learning (Riany, 2020). The results of observations and interviews with five junior high school students in Surabaya show that they do not have study discipline, no longer study every day, and only do assignments, when learning online, they only open links but do not focus fully on following them because there are many distractions when studying at home (distraction) and passive and even playing when the teacher explains virtually (Hermina et al., n.d.).

Student engagement is defined as meaningful student engagement throughout the learning environment (Parija & Bobhate, 2021). *Student engagement* is the extent of interest, attention, and curiosity shown by students when studying in order to successfully achieve their educational goals. It is considered a benchmark for assessing the quality of a student's experience. (Fredricks, Blumenfeld, & Paris, 2004) identified three main dimensions of student engagement, namely cognitive, behavioral, and emotional.

Cognitive engagement is the extent to which students can take on learning tasks. According to (Fredricks et al., 2004), cognitive involvement refers to students actively thinking, trying to understand, and completing school assignments seriously. This includes the amount of effort that students are willing to invest in doing the assignment (Sesmiyanti, 2018). A person's cognitive involvement includes seriousness in learning, understanding lessons, mastery of the knowledge learned, and the ability to carry out tasks, which is shown through learning intensity, focus during learning and carrying out tasks, as well as a person's persistence in completing difficult tasks. Cognitive involvement can also be seen through metacognition strategies in planning, organizing, and evaluating cognitive aspects when carrying out tasks so that they can organize and control the work on their tasks (Permana, 2021). Cognitively engaged students will invest in their learning, will strive to exceed requirements, and will enjoy challenges (Fredricks et al., 2004). At the same time, (Christenson, Reschly, & Wylie, 2012) stated that students' cognitive engagement is related to strategic learning strategies and active self-regulation.

Behavioral engagement refers to a student's participation in academic, social, or extracurricular activities. Behavioral engagement can be observed when students contribute to class discussions, attend to academic assignments, and demonstrate that they are listening to the teacher's instructions (Gregory, 2014). In a nationally representative sample of ninth-grade students, (Finn, n.d.) found that behavioral engagement predicted performance on standardized achievement tests. In addition to triggered behavior, (Smith, Jones, Gilbert, & Wieman, 2013) also proposed measuring engagement from a behavioral perspective, which can be applied to achieve the goal of assessing the effectiveness of different learning activities.

Meanwhile, emotional involvement focuses on positive or negative reactions to school, teachers, friends, and lessons. These positive feelings encourage students to bond with the school and be enthusiastic about learning. Emotional involvement focuses on conditions related to students' emotional involvement during learning activities (Christenson et al., 2012). Positive emotions include enthusiasm, interest, and enjoyment when learning (*Renninger*, n.d.), and negative emotional components include boredom, sadness, and frustration in the classroom (*Skinner*, n.d.). Emotionally, a person's involvement is closely related to their affective reactions when in class, including interest, boredom, happiness, sadness, and fear of learning. Emotional involvement is also related to behavior and feelings of liking or disliking the teacher and their learning (Permana, 2021).

Although several studies have investigated *student engagement* In various learning contexts, there is still limited research that specifically focuses on *student engagement* in online learning via Zoom Meetings. This research seeks to fill this gap by knowing which dimensions of *student engagement* are more dominant and experienced by students in the learning process through Zoom. In addition, I want to describe the conditions of the students who follow the learning through Zoom according to the items given. Thus, it is hoped that this will provide

a more comprehensive understanding of the challenges and opportunities in increasing student involvement in online learning.

METHOD

Research Design

This research uses descriptive quantitative methods to describe situations or phenomena (*Sidel, J. L., Bleibaum, R. N., & Tao*, n.d.). Through this quantitative descriptive method, detailed and actual information is collected, which can describe symptoms in the field and identify problems related to student engagement in the Zoom learning process.

Participants

The respondents of this research are students who use Zoom in the learning process, from high school students to university students. The data collection method used random sampling with a total of 100 respondents consisting of 18% men and 82% women. Data was collected through surveys distributed via Google Forms on various media such as WhatsApp and Instagram.

Measurement

Research data was measured using a student engagement scale, which was compiled based on the dimensions proposed by Fredricks (Fredricks et al., 2004), namely cognitive dimensions, behavioral dimensions, and emotional dimensions. The number of items arranged based on these dimensions is nine items. The measuring instrument is arranged based on a Likert scale with four answer choices starting from Strongly Agree, Agree, Disagree, and Strongly Disagree.

RESULTS

To find out the dominant dimensions of student engagement experienced by students when learning via Zoom, a descriptive analysis was carried out by comparing the mean of each dimension.

Table 1. Descriptive Data

No	Variable	Group	Rate – Rate (SD)
1	Cognitive	1	6.46 (1.50)
		2	6.11 (1.49)
2	Behavior	1	8.52 (1.39)
		2	8.17 (1.89)
3	Emotions	1	7.39 (1.29)
		2	7.50 (1.72)

Based on the data in Table 1 above, if you look at the mean for each dimension of engagement, it can be concluded that the behavioral dimensions of both men and women are the highest when taking part in Zoom learning.

If we look at the gender differences in each dimension, we can draw conclusions based on the t-test, as shown in Table 2 below.

Table 2. Descriptive Data

Variable	t	df	p
Cognitive	0.903	98	0.184
Behavior	0.924	98	0.179
Emotions	-0.306	98	0.620

Based on the data above, there are no differences between men and women in cognitive, behavioral, or emotional dimensions.

Cognitive Engagement *(Cognitive Engagement)*

In this research, the author wants to know individual cognitive involvement in Zoom learning, which includes seriousness in learning Zoom in cognitive aspects in more detail according to the items provided. The following is a percentage of the results obtained:

Table 3. Indicators of Cognitive Engagement

No	Statement	Percentage			
		SS	S	TS	STS
1	I feel more comfortable asking the teacher when using Zoom Meeting	9%	37%	49%	5%
2	I felt the lack of direct interaction with the teacher hindered my understanding of the material	27%	56%	16%	1%
3	I have difficulty concentrating when taking lessons via Zoom Meeting	24%	53%	23%	0%

Based on data on aspects of cognitive involvement in learning through Zoom meetings, it shows that the majority of respondents (49% TS and 5% STS) stated that they did not agree and strongly disagreed that asking teachers when using Zoom Meetings felt comfortable. These results can be concluded that as many as 54% of respondents felt uncomfortable asking teachers when using Zoom meetings. In contrast, 37% felt comfortable, and only 9% said they were very comfortable, or 46% felt comfortable.

Regarding the statement that the lack of direct interaction with teachers/lecturers hinders understanding of the material, the majority of respondents (27% strongly agree and 56% agree) that this hinders understanding of the material presented by teachers/lecturers. In contrast, only 17% felt there were no problems in understanding when there was no direct interaction.

Furthermore, related to concentration, it was obtained that the majority of respondents, 77% (24% strongly agreed and 53% agreed), experienced concentration problems when taking part in learning via Zoom meetings. The results of this analysis indicate that online learning using Zoom Meetings has several challenges related to the cognitive involvement of respondents, especially related to the active involvement of students in the learning process.

Behavioral Engagement *(Behavioral Engagement)*

Table 4. Behavioral Engagement Indicators

No	Statement	Percentage			
		SS	S	TS	STS
1	I always arrive on time for Zoom Meeting classes	19%	54%	22%	5%
2	I participated in the quiz held during the Zoom Meeting class	12%	73%	13%	2%
3	I ask questions and make comments during class Zoom Meetings	6%	54%	38%	2%

The results of the analysis of the percentage of aspects of behavioral involvement in learning through Zoom meetings show that the majority, 73%, agree and 12% strongly agree. Students admitted that they participated in the quizzes held during the Zoom Meeting class, and only 15% did not participate in the quizzes held during the Zoom Meeting. Regarding punctual attendance, 73% of them attended on time, but 27% did not attend on time at the Zoom Meeting.

In terms of asking questions and providing comments, it was found that 60% actively asked questions and made comments during the Zoom meeting (54% agreed and 6% strongly agreed), and 40% were passive and did not ask questions or make comments during the class held via zoom meetings. From the results of this analysis, it can be concluded that although the majority of participants showed good engagement in learning via Zoom Meetings, especially in terms of participation in quizzes and punctual attendance, there is still potential to increase participants' active

involvement, especially in terms of asking questions and providing comments.

Table 5. Indicators of Emotional Engagement

No	Statement	Percentage			
		SS	S	TS	STS
1	I feel interested in taking part in learning via Zoom Meeting	8%	48%	39%	5%
2	I don't like the atmosphere created in Zoom Meetings during the learning process	4%	51%	43%	2%
3	The atmosphere in the Zoom Meeting made me feel disconnected from the teacher and classmates	15%	51%	33%	1%

Based on the results of a survey conducted regarding the emotional aspects of learning involvement carried out via Zoom meetings, it was found that the majority of respondents had varying levels of interest in learning via Zoom meetings. As many as 48% of them were interested in taking part in this learning, while 8% were very interested in taking part in learning via Zoom. However, the majority also stated that they were not interested (39%) or very not interested (5%) in participating in learning via Zoom meetings.

Regarding the atmosphere created in Zoom Meetings, 51% of students don't like it, and 4% don't like the atmosphere created in learning classes through Zoom Meetings. Meanwhile, 45% of them like the learning atmosphere through Zoo meetings. Furthermore, the majority of respondents, 51%, agreed, and 15% strongly agreed that they felt disconnected from their interactions with teachers and classmates in a learning atmosphere via Zoom Meeting, although there were 34% of respondents who felt disconnected from their friends and friends.

From the results of this survey, it can be concluded that learning via Zoom Meetings has various impacts on participants' emotions and feelings. Although some participants felt interested and involved in online learning, many also felt uncomfortable, disconnected from social interaction, and did not like the online learning atmosphere.

DISCUSSION

Based on the results of the analysis above, student involvement in the learning process via Zoom consists of cognitive, behavioral, and emotional dimensions. Of these three dimensions, behavior is the highest dimension. According to Prihastiwi (Prihastiwi, Prastuti, & Eva, 2021), the characteristic of online learning is that the role of the teacher increases so that students must be more active in learning. In the analysis carried out, this can be seen from the active participation of students in quizzes during learning via Zoom (73%).

The results of this study indicate that respondents' understanding of the material presented was not sufficiently understood due to the lack of direct interaction with the teacher (56%). A lack of direct interaction can make students feel like they have less control over their learning process. From the perspective of *Self-Determination Theory (SDT)*, individuals are more likely to engage in activities when they feel independent, competent, and connected to others. SDT is a motivation theory that emphasizes the importance of three basic psychological needs: autonomy, competence, and relatedness (Zulkarnaen & Ruli, n.d.) . In this case, the lack of interaction with teachers is part of a lack of relatedness. Thus, when one needs are not met, the individual experiences a lack of motivation and is less involved in the activities they do.

Quite high numbers indicate that respondents have difficulty concentrating when zooming in, namely 24% (Strongly Agree) and 53% (Agree). Difficulty concentrating when learning via Zoom can occur due to distractions. Distractions when studying online are media and home distractions. According

to Prihastiwi (Hermina et al., n.d.)Students who are digitally distracted can shorten study sessions, neglect assignments, and not focus. This is because technological devices are capable of multitasking, so students also try to do this multitasking when online learning takes place. In Kumar's research (Kumar, Rangappa, Suchitra, & Gowda, 2024) students spend more time on pornography, social media, and computer games compared to e-learning. This has an impact on their mental health, physical health, and academic performance.

CONCLUSION

Data analysis showed that both male and female students had similar levels of cognitive, behavioral, and emotional engagement in online learning via Zoom. Although there is a slight difference in the average value of each aspect, this difference is not statistically significant. These findings indicate that online learning via Zoom can reach students of both genders effectively without significant gender bias in terms of engagement.

However, this study has several limitations, such as limited sample size and participant characteristics not being specific enough. For future research, it is recommended to involve larger and more diverse samples and explore other factors that may influence student engagement, such as adaptive learning design, social support, learning material design, teacher-student interaction, and technical support.

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DECLARATION OF POTENTIAL CONFLICT OF INTEREST

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REFERENCE

Christenson, S. L, Amy L. R and Chaty, W. (2012). Handbook of Research on Students Engagement. USA: Springer Science

Connell, J.P. (1990). Context, Self, and Action: A

Christenson, S. L., Reschly, A. L., & Wylie, C. (Eds.). (2012). *Handbook of Research on Student Engagement*. Boston, MA: Springer US. https://doi.org/10.1007/978-1-4614-2018-7

Finn, J. D. (n.d.). *Withdrawing from School*.

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School Engagement: Potential of the Concept, State of the Evidence. *Review of Educational Research*, *74*(1), 59–109. https://doi.org/10.3102/00346543074001059

Hermina, C., Juwarini, W., Yuwono, S., Agustiningsih, R. D., Fahiroh, S. A., Wibowo, D. S., … Restya, P. D. (n.d.). *KETAHANAN MENTAL DIMASA PANDEMI*.

Kumar, C., Rangappa, K. B., Suchitra, S., & Gowda, H. (2024). Digital distractions during blended learning and its negative repercussions: An empirical analysis. *Asian Association of Open Universities Journal*, *19*(1), 1–18. https://doi.org/10.1108/AAOUJ-02-2023-0024

Kushlev, K., & Epstein-Shuman, A. (n.d.). *Lights, Cameras (on), Action! Camera Usage During Zoom Classes Facilitates Student*.

Parija, S. C., & Bobhate, P. (2021). Fostering Student Engagement in Virtual Learning Environment. *SBV Journal of Basic, Clinical and Applied Health Science*, *4*(3), 57–58. https://doi.org/10.5005/jp-journals-10082-03123

Peper, E., Wilson, V., Martin, M., Rosegard, E., & Harvey, R. (2021). Avoid Zoom Fatigue, Be

Present and Learn. *NeuroRegulation*, *8*(1), 47–56. https://doi.org/10.15540/nr.8.1.47

Permana, H. (2021). *PERBEDAAN TINGKAT STUDENT ENGAGEMENT DALAM PROSES PEMBELAJARAN BERDASARKAN URUTAN KELAHIRAN*.

Prihastiwi, W. J., Prastuti, E., & Eva, N. (2021). E-Learning Readiness and Learning Engagement during the Covid-19 Pandemic. *KnE Social Sciences*. https://doi.org/10.18502/kss.v4i15.8212

RENNINGER. (n.d.).

Sesmiyanti, S. (2018). Student's Cognitive Engagement in Learning Process. *Journal Polingua: Scientific Journal of Linguistic Literatura and Education*, *5*(2), 48–51. https://doi.org/10.30630/polingua.v5i2.34

Sidel, J. L., Bleibaum, R. N., & Tao. (n.d.).

Skinner. (n.d.).

Smith, M. K., Jones, F. H. M., Gilbert, S. L., & Wieman, C. E. (2013). The Classroom Observation Protocol for Undergraduate STEM (COPUS): A New Instrument to Characterize University STEM Classroom Practices. *CBE—Life Sciences Education*, *12*(4), 618–627. https://doi.org/10.1187/cbe.13-08-0154

Zulkarnaen, R., & Ruli, R. M. (n.d.). *EFEKTIVITAS SELF-DETERMINATION THEORY DALAM PERILAKU PEMECAHAN MASALAH MATEMATIS SISWA*.

Riany, Y. E. (2020). Mengelola Kesehatan Mental Siswa Di Masa Pandemi. *Media Indonesia*. Https://Mediaindonesia.Com/Opini/359889/Mengelola-Kesehatan-Mental-Siswa-Di-Masa-Pandemi