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Analysis of Google Classroom's Online Learning Motivation on Mathematics Subjects

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Abstract

This article aims to describe students' motivation for online learning using Google Classroom in mathematics. In this study, the method used is descriptive qualitative, involving 21 senior high school students in Sukoharjo. The data collection techniques used were questionnaires and interviews. The results showed that the motivation to learn online Google Classroom in mathematics is influenced by internal and external factors. The first internal factor, namely the desire and desire above 60% indicates a good category, supported by the results of interviews that students have the desire and desire to succeed after using learning using Google Classroom. Second, there is an encouragement and learning need above 70% in a good category, indicating that students are motivated to learn. With the interview results, students answered that the ease of using Google Classroom provided a special experience in the student learning process that gave rise to a desire and encouragement to learn. The external factor, namely the existence of interesting activities in learning Google Classroom, is considered quite effective. From the four statements given, it reaches an average of 65%, the category is sufficient which indicates that Google Classroom can be accepted by students

Keywords: Online learning, Google Classroom, Motivation

Abstrak

Artikel ini bertujuan untuk mendeskripsikan motivasi siswa terhadap pembelajaran daring menggunakan *Google Classroom* pada mata pelajaran matematika. Pada penelitian ini metode yang digunakan adalah kualitatif deskriptif dengan melibatkan sebanyak 21 siswa dari kelas XI MIPA 2. Teknik pengumpulan data berupa angket dan wawancara. Hasil penelitian menunjukkan bahwa motivasi pembelajaran daring *Google Classroom* pada mata pelajaran matematika dipengaruhi oleh faktor intern dan faktor ekstern. Faktor intern yang pertama yaitu adanya hasrat dan keinginan di atas 60% menandakan kategori baik, didukung dengan hasil wawancara bahwa siswa mempunyai hasrat dan keinginan berhasil setelah menggunakan pembelajaran menggunakan Google Classroom. Kedua yaitu adanya dorongan dan kebutuhan belajar di atas 70% dengan kategori baik, menandakan siswa termotivasi untuk belajar. Dengan hasil wawancara siswa menjawab kemudahan dalam menggunakan Google Classroom memberikan pengalaman tersendiri dalam proses belajar siswa yang menimbulkan keinginan dan dorongan untuk belajar. Faktor ekstern yaitu adanya kegiatan yang menarik dalam belajar Google Classroom dinilai cukup efektif dari empat pernyataan yang diberikan mencapai rata-rata 65% kategori cukup yang menandakan Google Classroom bisa diterima oleh siswa.

Kata kunci: Pembelajaran daring, *Google Classroom*, Motivasi

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Introduction

Mathematics is a compulsory subject that exists at every level of education starting from Elementary School to Higher Education levels. Mathematics has a very significant role for humans in everyday life (Van Den Heuvel-Panhuizen, 2003), even all the technology that exists today is the result of mathematics. According to Skemp (1987), Hudojo (1988), and Soedjadi (2000), "mathematics has characteristics including the object studied is abstract, the truth is based on logic, the learning is gradual

and continuous, there is an attachment between one material and another (Hasbi, et al., 2016; NCTM, 2000), uses symbolic language and is applied in other fields of science".

Currently, the Covid-19 virus in Indonesia has a huge impact on all people, especially in education (Dewi, 2020; Purwanto, et al., 2020; Crawford, 2020; Marinoni, 2020). The government's solution for education is policymaking to change the face-to-face learning process with online learning. This step is a government effort to break the chain of spreading Covid-19. Online learning during a pandemic is carried out to ensure the quality of education as a result of social distancing.

Online learning is the use of the internet network for the learning process (Isman, 2016). Online learning as formal education is carried out by schools with teachers as teachers and students carried out in separate locations so that it requires an interactive telecommunications system to connect the two and diverse resources needed in it (Sobron et al., 2019). According to Windhiyana (2020), the advantages of doing online learning, one of which is increasing the level of interaction between students and teachers, online learning provides freedom of study time to students, so they can study anytime and anywhere, reach out to students widely, facilitate the improvement and storage of learning material. Various kinds of telecommunication systems are presented as online learning media. One of the telecommunication systems that can support online learning is Google Classroom. Google Classroom is the latest feature of the Google for Education application that can be used by lecturers, teachers, students, and students in the learning process (Hakim, 2016). By Arzona, et al. (2020) argue that online learning used using Google Classroom media allows teachers and students to carry out face-to-face learning in class by being given material in the form of PowerPoint slides, e-books, instructional videos, assignments (individual or group), as well as assessments. Google Classroom has many benefits, namely: a). Set up easily, teachers can add students directly or share code with their class to join. b). The time-saving, simple, and paperless assignment process makes it easy for teachers to create, check, and grade assignments quickly. c). Improve organization, to see all assignments and materials stored automatically in Google Drive. d). To improve communication, the teacher provides information and initiates live discussions. e). Affordable and safe, no ads, and free (Pratama, & Sopryadi, 2016). Google Classroom can be downloaded via iOS and Android-based mobile devices. Google Classroom as online learning can be followed through laptops, computer devices, or gadgets that can be accessed by students and teachers everywhere. Google Classroom was chosen as one of the telecommunication systems used in class XI MIPA 2 SMA Veteran 1 Sukoharjo.

In online learning, there are many factors that must be considered by the teacher in the learning process because many students complain, especially about mathematics, because of the lack of understanding of students so that students have difficulty learning independently at home. Meanwhile, for some students, mathematics is a subject that is difficult to understand if it is not explained directly by the teacher (Niess, 2005; Taşar, 2010). Student are expected to be able to understand mathematics material well, it is hoped that students can learn well and have a high motivation to learn mathematics. Learning motivation psychologically can experience development, meaning that it is influenced by the physiological conditions and psychological maturity of students (Kompri, 2016). According to Sardiman, (2018) "motivational learning activities can be said to be the overall driving force in students that raises, ensures continuity, and provides direction for learning activities so that it is hoped that goals can be achieved". Motivation to learn plays a big role in one's success in learning (Hill, & Ball, 2004; Ciampa, 2014; Schulze, & van Heeren, 2015). Therefore, it can be concluded that learning motivation is a comprehensive encouragement from within students to carry out learning activities which are characterized by changes in energy and behavior to achieve the desired goals.

There has been a lot of research being done on the relationship between online learning using google classroom and mathematics in the age of pandemic covid-19. Some of them examine the impact of online learning using google classroom on students' academic achievement and attitudes (Oyarinde & Komplafe, 2020). Meanwhile, some discussed qualitatively about the perceptions and challenges of

using google classroom on the online class (Kumar et al., 2020). However, just a few numbers have been discussed about students' learning motivation. The purpose of this study was to describe students' learning motivation for online learning using Google Classroom in Mathematics in class XI MIPA 2 SMA Veteran 1 Sukoharjo.

Methods

This study used a qualitative descriptive method which describe in detail the context of the study (Creswell, & Poth, 2016). This research method was chosen because this study aims to analyze online learning motivation through Google Classroom on mathematics in class XI MIPA 2 SMA Veteran 1 Sukoharjo. In online learning, students' motivation must be considered because it is an important factor in academic achievement.

The data collection techniques used were questionnaires and interviews. The questionnaire was used to obtain data related to motivation to learn online learning in Google Classroom in mathematics subjects. Data collection was carried out through Google Forms with a link that could be accessed by students easily. The questionnaire was made using a Likert scale with 5 answer choices, namely Strongly Agree (SS), Agree (S), Enough (C), Disagree (TS), and Strongly Disagree (STS). According to Sugiyono, (2018) "the Liker scale can be used to measure the opinions, attitudes, and perceptions of individuals or groups of people towards social phenomena". The Likert scale table is presented below which is adapted by (Adelson & McCoach, 2010; Norman, 2010).

Table 1. Likert Scale

Assessment Criteria	Scoring Scale	
	Positive Statement	**Negative Statement**
Strongly agree	5	1
Agree	4	2
Enough	3	3
Disagree	2	4
Strongly Disagree	1	5

The data analysis technique in this study was carried out by calculating the percentage of the score obtained, the formula for calculating the percentage that was adapted by (Creswell, 2017).

$$\text{Index } \% = \frac{T \times Pn}{Y} \times 100 \quad (1)$$

Information:

T = The total number of respondents who voted
Pn = Choice of Likert score numbers
Y = Ideal Score

The percentage results that have been obtained are interpreted based on the following scores.

Table 2. Percentage Result

Percentage	Information
0 % - 19,99 %	Very Poor
20 % - 39,99 %	Not good

40 % - 59,99 %	Enough
60 % - 79,99 %	Good
80 % - 100 %	Very good

According to Moleong, (2018); Taylor, et al. (2015) "An interview is a conversation that is conducted for a specific purpose, the conversation is carried out by two parties, namely the interviewer (interviewer) who asks the question and the interviewee (interviewee) who provides the answer to the question". Interviews were conducted by giving questions that met all indicators through google form to 5 students as a sample with a purposive sampling technique followed by random sampling using a lottery technique. Interviews were conducted to collect data and check data validity. The instrument used was an interview guide in the form of a guide for researchers to develop open-ended questions to obtain information about online learning motivation in a google mathematics classroom.

The data analysis technique used in this research is descriptive qualitative data analysis technique. The questionnaire data analysis begins with examining and calculating the score of each answer chosen by the respondent with predetermined guidelines. Furthermore, the percentage score of each respondent is calculated based on the predetermined percentage formula then interpreting the results of the calculation of the percentage of learning motivation for each indicator with predetermined criteria. While the interview data analysis begins with data reduction, namely summarizing, selecting important things to focus on, looking for themes and patterns. Furthermore, the interview data is presented in the form of an interview transcript.

Based on the two analyzes, data validity was performed using data triangulation. According to (Moleng, 2018; Ary, et al., 2018) "data triangulation is a technique of checking the validity of data that uses something from outside the data to check or compare data". The data checking technique is data triangulation. Researchers used questionnaires and interviews for the same data source simultaneously to be used as a basis for analyzing and concluding how online learning motivation in Google Classroom in class XI MIPA 2 SMA Veteran 1 Sukoharjo

Results and Discussion

Results

Based on the results of the questionnaire, there are 5 percentage ranges, namely, for very bad criteria it has a percentage range of 0% - 19.99%, for bad criteria it has a percentage range of 20% - 39.99%, for the criteria it is sufficient. The percentage range is 40% - 59.99%, for good criteria it has a percentage range of 60% - 79.99%, and for very good criteria it has a percentage range of 80% - 100%. Also, this study also uses three indicators with 10 statements which are used as the basis for determining the level of student motivation. For student response questionnaire data in this study can be seen in Table 3.

Table 3. Student Response Questionnaire

Indicator	Aspect	Percentage	Criteria
Desire and desire succeed	With Google Classroom, it's easier for me to understand the learning material	74.29 %	Good
	Google Classroom allows me to complete assignments quickly because of the time limit for submissions	71.43 %	Good
	Using Google Classroom helps improve my ability to understand the material	63.81 %	Good

Encouragement and learning needs	With Google Classroom, it helps the learning process during the Covid-19 pandemic	78.09 %	Good
	Google Classroom makes it easy for me to send assignments	73.33 %	Good
	With Google Classroom, it makes it easy for me to download learning materials	76.19 %	Good
Activities that are interesting in learning	Google Classroom can eat up your quota	56.19 %	Enough
	With Google Classroom making Mathematics Learning fun	66.67 %	Good
	The appearance in Google Classroom is clear, so it helps me understand the material presented	70.48 %	Good
	For Google Classroom it is very easy to use	77.14 %	Good
Average		**70.76 %**	Good

Based on the table above, it can be seen that students feel motivated by learning online Google Classroom on mathematics due to the desire and desire to succeed, encouragement and learning needs, interesting activities in learning.

To get more in-depth information about motivation to learn online in the google mathematics classroom, an analysis of the results of questionnaires and interviews is conducted. Based on these two analyzes, method triangulation was carried out by comparing the results of questionnaires and interviews regarding online learning motivation in the Google Classroom in mathematics. The purpose of conducting method triangulation is to check the validity of the research data. The following is a comparison of the results of the questionnaire and interview in table 4.

Table 4. Comparison of Questionnaire and Interview Results

Indicator	Analysis of Questionnaire Results	Analysis of Interview Results
Desire and desire succeed	Including good because of the three statements conveyed an average of above 60%	The five students, four of them have the desire and desire to succeed after using Google Classroom learning
Encouragement and learning needs	The student's motivation to learn reaches an average of above 70% which indicates that students are motivated to learn	The five students answered that the ease of using Google Classroom provided a distinct experience in the student learning process, giving rise to a desire and encouragement to learn.
Activities that are interesting in learning	The use of Google Classroom is considered quite effective from the four statements given, reaching an average of 65% which indicates that Google Classroom can be accepted by students.	The five students, three students answered that a clear and easy-to-use display made student learning more interesting, even though it cut the quota but did not reduce student interest in learning.

Based on Table 4 above regarding the comparison of the results of the questionnaire and the interview, it is concluded that there is an agreement between the results of the questionnaire and the results of the interview. So it is concluded that the data collected can be declared valid.

Discussion

Based on the explanation of the research results indicating that the motivation to learn mathematics online Google Classroom is done through filling out questionnaires and interviews. From the results of questionnaires and interviews, it was found that several indicators were in the good and sufficient category.

The results of the study were the desire and desire to succeed with a percentage above 60% with an average in the good category for motivation to learn online Google Classroom in mathematics. The desire and desire to succeed is one of the sufficient aspects because based on the results of the interview that students have the desire and desire to succeed after using learning using Google Classroom.

The existence of encouragement and learning needs with a percentage of the results of the questionnaire above 70% with a good category which indicates that students are motivated to learn. This is supported by the results of interviews with five students who answered that the ease of using Google Classroom provides its own experience in the student learning process, giving rise to a desire and encouragement to learn.

There are interesting activities in learning. The use of Google Classroom is considered quite effective from the four statements considering that on average it reaches 65% sufficient category which shows that Google Classroom can be accepted by students. Based on the results of the interview, three students answered that a clear display and ease of use made student learning more attractive, although cutting quotas did not reduce student interest in learning.

Conclusion

Based on the results of the research and discussion that has been described, it can be concluded that the motivation for online learning Google Classroom in mathematics is caused by internal factors, namely: 1) the desire and desire to succeed, 2) the motivation and need for learning and external factors, namely the existence of interesting activities in learning. So that online Google Classroom learning is suggested as an alternative to using during the Covid-19 pandemic. From the results and discussion above that lead to the research objectives, By that students are motivated by online learning Google Classroom on mathematics subjects.

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References

Adelson, J. L., & McCoach, D. B. (2010). Measuring the mathematical attitudes of elementary students: The effects of a 4-point or 5-point Likert-type scale. *Educational and Psychological measurement*, *70*(5), 796-807.

Arizona, K., Abidin, Z., & Rumansyah, R. (2020). Pembelajaran online berbasis proyek salah satu solusi kegiatan belajar mengajar di tengah pandemi covid-19. *Jurnal Ilmiah Profesi pendidikan*, *5*(1), 64-70.

Ary, D., Jacobs, L. C., Irvine, C. K. S., & Walker, D. (2018). *Introduction to research in education*. Cengage Learning.

Ciampa, K. (2014). Learning in a mobile age: an investigation of student motivation. *Journal of Computer Assisted Learning*, *30*(1), 82-96.

Crawford, J., Butler-Henderson, K., Rudolph, J., Malkawi, B., Glowatz, M., Burton, R., ... & Lam, S. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *Journal of Applied Learning & Teaching*, *3*(1), 1-20

Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Dewi, W. A. F. (2020). Dampak Covid-19 terhadap implementasi pembelajaran daring di Sekolah Dasar. *Edukatif: Jurnal Ilmu Pendidikan*, *2*(1), 55-61.

Hakim, A. B (2016). Efektifitas Penggunaan *E-Learning Moodle, Google Classroom* Dan *Edmodo*. *I-Statement*, 2 (1), 2-6.

Hasbi, M., Lukito, A., Sulaiman, R., & Muzaini, M. (2019). Improving the Mathematical Connection Ability of Middle-School Students through Realistic Mathematics Approach. *Journal of Mathematical Pedagogy (JoMP)*, *1*(1), 37-46.

Hill, H. C., & Ball, D. L. (2004). Learning mathematics for teaching: Results from California's mathematics professional development institutes. *Journal for research in mathematics education*, 330-351.

Hudojo, H. (1988). Mengajar belajar matematika. *Jakarta: Depdikbud*.

Isman, M. (2016). *Pembelajaran Moda Dalam Jaringan (Moda Daring)*. ISBN: 978-602-361-045-7.

Kompri, (2016). *Motivasi Pembelajaran Prespektif Guru dan Siswa*. Bandung: PT. Rosda Karya.

Kumar, J. A., Bervell, B., & Osman, S. (2020). Google classroom: insights from Malaysian higher education students' and instructors' experiences. *Education and information technologies*, 25(5), 4175-4195.

Marinoni, G., Van't Land, H., & Jensen, T. (2020). The impact of Covid-19 on higher education around the world. *IAU Global Survey Report*.

Moleong, L. J. (2018). *Metodologi Penelitian Kualitatif*. Bandung: PT Rosdakarya.

National Council of Teachers of Mathematics (NCTM). (2000). *Principles And Standards Schools Mathematics*. Reston, VA:NCTM.

Niess, M. L. (2005). Preparing teachers to teach science and mathematics with technology: Developing a technology pedagogical content knowledge. *Teaching and teacher education*, *21*(5), 509-523.

Norman, G. (2010). Likert scales, levels of measurement and the "laws" of statistics. *Advances in health sciences education*, *15*(5), 625-632.

Oyarinde, O. N., & Komolafe, O. G. (2020). Impact of Google Classroom as an Online Learning Delivery during COVID-19 Pandemic: The Case of a Secondary School in Nigeria. *Journal of Education, Society and Behavioural Science*, 53-61.

Pratama, D., & Sopryadi, H. (2016). Analisis Pengaruh Pemanfaatan Google Classroom terhadap Efisiensi pada STMIK XYZ. In *Seminar Nasional Teknologi Informasi*.

Purwanto, A., Pramono, R., Asbari, M., Hyun, C., Wijayanti, L., Putri, R., & santoso, priyono. (2020). Studi Eksploratif Dampak Pandemi COVID-19 Terhadap Proses Pembelajaran Online di Sekolah Dasar. *EduPsyCouns: Journal of Education, Psychology and Counseling*, *2*(1), 1-12.

Sardiman, A. M. (2018). *Interaksi dan Motivasi Belajar Mengajar (cetakan 24).* Jakarta: Rajawali Pers.

Schulze, S., & van Heeren, M. (2015). Learning environments matter: Identifying influences on the motivation to learn science. *South African Journal of Education*, *35*(2), 1058.

Skemp, R. R. (1987). *The psychology of learning mathematics*. Psychology Press.

Sobron, A. N., Bayu, B., Rani, R., & Meidawati, M. (2019, October). Pengaruh Daring Learning terhadap Hasil Belajar IPA Siswa Sekolah Dasar. In *Seminar Nasional Sains & Entrepreneurship* (Vol. 1, No. 1).

Soedjadi, R. (2000). *Kiat pendidikan matematika di Indonesia: konstatasi keadaan masa kini menuju harapan masa depan*. Direktorat Jenderal Pendidikan Tinggi, Departemen Pendidikan Nasional.

Sugiyono (2018). *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Bandung: CV Alfabeta.

Taşar, M. F. (2010). What part of the concept of acceleration is difficult to understand: the mathematics, the physics, or both?. *ZDM*, *42*(5), 469-482

Taylor, S. J., Bogdan, R., & DeVault, M. (2015). *Introduction to qualitative research methods: A guidebook and resource*. John Wiley & Sons.

Van Den Heuvel-Panhuizen, M. (2003). The didactical use of models in realistic mathematics education: An example from a longitudinal trajectory on percentage. *Educational studies in Mathematics*, *54*(1), 9-35

Windhiyana, E. (2020). Dampak Covid-19 terhadap kegiatan pembelajaran online di sebuah perguruan tinggi kristen di Indonesia. *Perspektif Ilmu Pendidikan*, *34*(1), 1-8.