M A T H L I N E
JURNAL MATEMATIKA DAN PENDIDIKAN MATEMATIKA
ISSN 2502-5872 (Print)
ISSN 2622-3627 (Elektronik)

Volume 7 Nomor 1, Februari 2022, halaman 142 – 155.

The Profile of Prospective Mathematic Teachers' Habits of Mind Towards Calculus Learning Amidst COVID-19 Pandemic

Profil Habits of Mind Mahasiswa Calon Guru Matematika pada Pembelajaran Kalkulus Dimasa Pandemi

Rifqi Hidayat
Universitas Muhammadiyah Cirebon, Jl.Tuparev No. 70 Cirebon, rifqi.math@gmail.com

ABSTRAK

Habits of Mind (HoM) memiliki peranan penting dalam proses pembelajaran dan perkembangan individu dalam memecahkan masalah pada pembelajaran kalkulus. Kebiasaan ini yang menjadi akar kekuatan mahasiswa dalam melatih kemampuan mereka dalam menemukan solusi dari permasalahan yang dihadapi khususnya pada pembelajaran kalkulus. Dimasa pandemi ini pola pelaksanaan pembelajaran mengalami perubahan, dari secara tatap muka menjadi daring (dalam jaringan). *Habits of mind* yang baik diharapkan dapat mengantarkan kesuksesan mahasiswa pada pembelajaran kalkulus di masa pandemi. Penelitian ini bertujuan untuk mendeskripsikan profil *habits of mind* mahasiswa prodi pendidikan matematika pada pembelajaran kalkulus di masa pandemi. Jenis penelitian yang digunakan adalah deskriptif dengan pendekatan kuantitatif. Populasi penelitian adalah mahasiswa prodi pendidikan matematika FKIP disalah satu universitas swasta di kabupaten Cirebon. Sampel penelitian diambil dengan teknik *purposive sampling* yaitu mahasiswa yang mengontrak mata kuliah Kalkulus Diferensial di tahun akademik 2020/2021 yang berjumlah 34 orang. Instrumen yang digunakan adalah kuesioner HoM yang disebar secara *online*. Analisis data dilakukan secara kuantitatif. Hasil penelitian menunjukkan bahwa *habits of mind* mahasiswa prodi pendidikan matematika FKIP disalah satu universitas swasta di Kabupaten Cirebon berada pada kategori baik dengan persentase 71,76%.
Kata Kunci : *Habits of Mind*, Profil, Kalkulus, dan Pandemi.

ABSTRACT

Habits of Mind (herein: HoM) plays a crucial role in in the learning process and individual development for problem solving in calculus subject. This habit is the root of students' strengths in practicing their abilities in finding solutions to problems they encounter particularly in learning calculus. During COVID-19 pandemic, the pattern of implementing learning has changed from face-to-face to online (in a network). Good habits of mind are expected to lead to student success in learning calculus during the pandemic. This study aims to describe the profile of habits of mind of students of mathematics education study program in calculus learning during the pandemic. The type of research used is descriptive with a quantitative approach. The research population is students of the Mathematics Education Study Program, FKIP at a private university in Cirebon district. The research sample was taken using a purposive sampling technique, namely 34 students who contracted the Differential Calculus course in the 2020/2021 academic year. The instrument used was the HoM questionnaire which was distributed online. Data analysis was carried out quantitatively. The results showed that the habits of mind students of the Mathematics Education Study Program at a private university in Cirebon district were in the good category with a percentage of 71.76%.
Keywords : Habits of Mind, Profile, Calculus, and Pandemic.

How to Cite: Hidayat, R. The Profile of Prospective Mathematic Teachers' Habits of Mind Towards Calculus Learning Amidst COVID-19 Pandemic. *Mathline: Jurnal Matematika dan Pendidikan Matematika*, Vol. 7 No. 1, 142 – 155.
DOI: https://doi.org/10.31943/mathline.v7i1.227

PRELIMINARY

Calculus is a fragment of mathematics that almost exists in every university, particularly in mathematics study programs. Calculus is also one of the skills courses that must be taken and completed by students who take the exact field, one of which is a student studying in the mathematics education study program. In the mathematics education study program at the Faculty of Teacher Training and Education at a private university in Cirebon Regency, the calculus course is a compulsory subject which is divided into three types, namely differential calculus, integral calculus and multivariable calculus. Differential calculus is given in the second semester, integral calculus in the third semester and multivariable calculus in the fourth semester.

The subject matter in this calculus course is the basic concept that will be utilized in other mathematics courses, both applied mathematics and pure mathematics (Apriandi & Krisdiana, 2016; Rahmawati, 2017). So that the calculus course becomes a very important subject. Given the importance of calculus courses, students are expected to have good skills in mastering and understanding this course. However, in oder to comprehend one concept in mathematic field particularly calculus, Umar (2013) states that the abilities that students must develop in learning mathematics particularly in calculus include not only cognitive abilities but also affective abilities. This is reinforced by the opinion of Mullis (2013) which states that in learning mathematics there is a positive relationship between attitudes and mathematics achievement. Qadarsih's research (2017) concludes that there is a significant influence of mind habits on mastery of mathematical concepts. While Slavin (2000) added that a person is considered to possess learned something if he can show a change in his behavior. This shows that the orientation of learning, including in this case is learning mathematics, especially learning calculus in addition to developing knowledge and skills, namely developing attitudes.

Aristotle (Canfields & Watkins in Miliyawati, 2014), states that the success of each individual is mostly determined by the habits he does. There are several habits carried out by successful and creative individuals that decide them from other individuals in general. What is a habit? Habits are behaviors that are molded by continuous repetition (American

Heritage Dictionary in Miliyawati, 2014). Habits that are carried out continuously will become stronger and permanent in the individual hence it is resistant to change. In this case the habit has been rooted in the individual.

One category of habit that is deemed as momentously prompting individual success is the habit of thinking (habits of mind). Handayani (2015) states that habits of mind are one of the important cultures to be developed in the classroom environment when students study Mathematics. Habits of Mind (henceforth: HoM) implies that behavior requires a mind discipline that is trained in such a way that it becomes a habit to try to continue to take wiser and smarter actions (Cuoco et al., 1996). This can be understood because all forms of action taken by an individual are a consequence of his thinking habits (Miliyawati, 2014). Costa and Kallick (2008) define habitual thinking as a tendency to behave intellectually or intelligently when faced with problems, especially problems for which the solution is not immediately known. When faced with problems, students tend to form certain intellectual behavior patterns that can encourage individual success in solving these problems. Cuoco, Goldenberg, and Mark (Prasad, 2020) explain Mathematical Habits of Mind is learning to recognize when a problem or statement that is meant to be mathematical is, in fact, still quite wrong or vague; become comfortable and skilled at bringing mathematical meaning to problems and statements through definition, systematization, abstraction, or making logical connections; and seek and develop new ways of describing situations. Hendriana, et al (2017) stated that basically mathematical thinking habits (habits of mind) abbreviated as HoM are essential mathematical dispositions that need to be possessed and developed especially for students who study high-order mathematical abilities (High Order Mathematical Thinking abbreviated HOMT). Then Marita (2014) states that habits of mind are a set of skills, attitudes, and values that allow each individual to bring up performance or behavioral intelligence based on the stimulus given to guide each individual in dealing with or resolving existing issues. Dwirahayu et al., (2018) stated that habits of mind are a person's intelligent behavior tendency to solve unknown problems and immediately know the solution. Furthermore, Ariawan & Zetriuslita (2019) stated that habits of mind are aspects that allow individuals to do repetition in thinking which will eventually make a habit that is useful when solving problems. Furthermore, Qadarsih (2017) argues that the habit of mind can help someone to regulate learning methods and help find solutions to problems in interpersonal relationships and relationships at work.

One of the complications in calculus learning is the students' anxiety about calculus itself. One of the causes of student anxiety about calculus is the learning experience established in the past (Nawangsari, 2001). It can be concluded that calculus is a scourge for most students because of students' negative perceptions of calculus itself. Amidst the current COVID-19 pandemic, learning calculus which is already considered problematic by most students is faced with a new potential obstacle namely the switch of implementation pattern from face-to-face to online learning. This is a policy of the Indonesian government in an effort to control the spread of COVID-19. This is confirmed by the opinion of Herliandry et al., (2020) which states that during the COVID-19 pandemic, learning at home or online is a solution to continue the rest of the semester. Online learning is defined as a knowledge transfer experience using images, audio, video, text communication, software (Basilaia & Kvavadze, 2020) and with the support of the internet network (Zhu & Liu, 2020).

Online learning is a learning process that does not require direct face-to-face meetings between lecturers and students but utilizes the internet network and is assisted by various applications that support the learning process (Bentley, 2012). When learning calculus is implemented face-to-face, students undergo many shortcomings, difficulties, and the possibility students' anxiety. Particularly if the learning pattern is switched from face-to-face to online. Are the student habits of mind before the pandemic different from the current pandemic? Given the urgency of HoM in determining student success, therefore it is necessary to conduct research to look at the profiles of habits of mind of students in the mathematics education study program at a private university in Cirebon Regency in learning calculus during this pandemic. Based on the aforementioned explanations, the purpose of this study is to determine the profile of the mathematic students' HoM, FKIP Muhammadiyah University, Cirebon in learning calculus during the COVID-19 pandemic. The contribution of the results of this study are expected as input data for lecturers in choosing appropriate learning strategies and models as an effort to develop habits of mind for students of mathematics education study program in learning calculus.

METHODS

This research *employs quantitative research by using descriptive research design*. Bungin (2005) states that descriptive quantitative research is used to describe, explain, or summarize various conditions, situations, phenomena, or various research variables

according to events as they are which can be captured, interviewed, observed, and which can be expressed through documentary materials.

The population in this study were all students of the Mathematics Education Study Program FKIP at a private university in Cirebon Regency. The research sample was determined by using a purposive sampling technique, namely 34 students who contracted the Differential Calculus course in the 2020/2021 academic year.

The data were obtained through Habits of Mind questionnaire which adapted from 16 HoM proposed by Costa and Kallick indicators. The questionniares were distributed online through Google Form application. The sixteen habits of mind include: 1) Persist or never give up; 2) Set the conscience; 3) Listening to other people's opinions with empathy; 4) Think flexible; 5) Metacognitive thinking; 6) Try to work carefully and precisely; 7) Ask and raise problems effectively; 8) Utilizing old experiences to form new knowledge; 9) Think and communicate clearly and precisely; 10) Utilizing the senses in collecting and processing data; 11) Creating, imagining, and innovating; 12) Enthusiastic in responding; 13) Dare to take responsibility and face risks; 14) Humorous; 15) Thinking is interdependent; and 16) Learning to depend (Costa, Ed., 2001). The HoM questionnaires were utilized to measure the mathematical thinking habits (habits of mind) of students in calculus learning.

The HoM questionnaire employed in this study was a closed-ended questionnaire type. In other words, the answers have been provided by the researcher hence the respondents only choose one answer that they feel is suitable. The form of the questionnaire was based on a Likert scale, in this case it means that the answers given are positive statements and negative questions. The answer choices on this questionnaire are SS (Strongly Agree), S (Agree), T (Disagree), ST (Strongly Disagree). In this research design, a questionnaires were administered to students at the end of the calculus lesson.

The data analysis technique used in this research was quantitative descriptive analysis. The criteria for descriptive analysis of percentages (Riduan, 2009) are as follows.

Table 1. Descriptive Analysis Criteria Percentage

No	Percentage Interval	Criteria
1	$81{,}25\% < \% \leq 100\%$	Very Good
2	$62{,}25\% < \% \leq 81{,}25\%$	Good
3	$43{,}75\% < \% \leq 62{,}25\%$	Fairly Good
4	$25\% \leq \% \leq 43{,}75\%$	Bad

RESULTS AND DISCUSSION

The following presents the results of the HoM questionnaire analysis on calculus learning amidst COVID-19 pandemic based on 16 Habits of Mind's Costa and Kallick indicators:

Table 2. Data on HoM Questionnaire Results Based on Indicators: Persistence/Never Give Up/Not Easily Frustrated

No	Statement	VA	A	D	VD	Percentage	Interpretation
1	I persist solving the calculus problem until it is done even though it takes a long time (+)	11	23	-	-	83,09%	Very Good
2	I give up when dealing with a difficult calculus task (-)	3	5	25	1	67,65%	Good
	Average					75,37%	Good

Based on Table 2, it is revelaed that the average of students' HoM on the indicators of persistence/never give up/not easily frustrated are 75.37% which are in the good category. Students are able to tenaciously persist in solving calculus problems to completion even though it takes a long time and students do not give up easily when dealing with complex calculus tasks.

Table 3. Data on HoM Questionnaire Results Based on Indicators: Setting Conscience

No	Statement	VA	A	D	VD	Percentage	Interpretation
3	I hate to receive criticism of my calculus work (-)	-	15	18	1	64,71%	Good
4	I am patient and pray when I fail the calculus test (+)	13	21	-	-	84,56%	Very Good
	Average					74,63%	Good

Based on Table 3, it is found that the average of students' HoM on the indicators of regulating conscience are 74.63% which are in the good category. The students have no problem in accepting criticism concerning their calculus work. They are always patient and pray when they fail in calculus exam.

Table 4. Data on HoM Questionnaire Results Based on Indicators: Empathize with Other People's Feelings

No	Statement	VA	A	D	VD	Percentage	Interpretation
5	I empathize listening to the complaints of friends in learning	7	27	-	-	80,15%	Good

	calculus (+)						
6	I'm tired of hearing long calculus explanations (-)	3	7	23	1	66,18%	Good
	Average					73,16%	Good

Based on Table 4, it is revealed that the average of students' HoM on the indicators of empathy for the feelings of others are 73.16% which are in the good category. Good students empathize when listening to their friends' complaints in learning calculus. Good students are also those who never get bored in listening to long calculus explanations.

Table 5. Data on HoM Questionnaire Results Based on Indicators: Flexible Thinking, Reflective, Confident, Open.

No	Statement	VA	A	D	VD	Percentage	Interpretation
7	I refuse to change my views despite additional relevant calculus information (-)	-	20	14	-	60,29%	Fairly Good
8	I asked myself: Is the answer I gave correct? (+)	14	20	-	-	85,29%	Very Good
	Average					72,79%	Good

Based on Table 5, it is acknowledged that the average of students' HoM on the indicators of flexible, reflective, confident, and open thinking are 72.79% which are in the good category. It is good enough that the students' views are not rigid. In this vein, they can think flexibly, reflectively and openly when there is additional relevant information. Furthemore, the students are also thorough and confident in the answers given.

Table 6. HoM Questionnaire Result Data Based on Indicator: Metacognitive Thinking.

No	Statement	VA	A	D	VD	Percentage	Interpretation
9	I'm thinking about how to solve this calculus problem (+)	5	29	-	-	78,68%	Good
10	I avoid thinking about achieving the calculus target that has been designed (-)	3	7	24	-	65,44%	Good
	Average					72,06%	Good

Based on Table 6, it is found that the average of students' HoM on the metacognitive thinking indicators are 72.06% which are in the good category. The students

have been able to think of ways that will be taken every time they will solve calculus problems / questions. They have also positively designed targets for achieving calculus learning outcomes.

Table 7. Data on HoM Questionnaire Results Based on Indicators: Working Thoroughly and Precisely, Reaching High Standards

No	Statement	VA	A	D	VD	Percentage	Interpretation
11	I re-learn difficult calculus topics to gain a better understanding (+)	6	27	1	-	78,68%	Good
12	I ignore the formulas/rules used in each step of the calculus problem (-)	1	4	28	1	71,32%	Good
	Average					75%	Good

Based on Table 7, it is recognized that the average of students HoM on the indicators work carefully and precisely and achieve high standards of 75% which are in the good category. It is good for students to familiarize themselves with re-learning difficult calculus topics to get a better understanding. They also do not ignore the formulas/rules used in each step of the work on calculus problems.

Table 8. HoM Questionnaire Result Data Based on Indicators: Asking, Raising Problems Effectively Accompanied by Supporting Data.

No	Statement	VA	A	D	VD	Percentage	Interpretation
13	I asked a short question for no reason (-)	1	10	23	-	66,18%	Good
14	I request an explanation of calculus accompanied by relevant supporting data (+)	8	26	-	-	80,88%	Good
	Average					73,53%	Good

Based on Table 8, it is known that the average of students' HoM on the indicators of asking questions, posing problems effectively with supporting data are 75% which are in the good category. Students positively ask questions accompanied by reasons. They also ask for calculus explanations accompanied by relevant supporting data.

Table 9. Data on HoM Questionnaire Results Based on Indicators: Utilizing Old Experience, and Analogies.

No	Statement	VA	A	D	VD	Percentage	Interpretation
15	When facing new material, I try to relate it to the previous concept (+)	4	30	-	-	77,94%	Good
16	I avoid looking for similarities in the concept of the problem encountered with the previous concept of calculus (-)	1	11	22	-	65,44%	Good
	Average					71,69%	Good

Based on Table 9, it is identified that the average of students' habits of mind of students on the indicators of utilizing old experience and analogies are 71.69% which are in the good category. Students are good at trying to connect with previous concepts when facing new material. They are also always looking for similarities in the concept of the problem faced with the previous calculus concept.

Table 10. Data on HoM Questionnaire Results Based on Indicators: Working Thoroughly and Precisely, Reaching High Standards.

No	Statement	VA	A	D	VD	Percentage	Interpretation
17	I look at the characteristics of the existing data/information before doing calculus proofs (+)	3	29	2	-	75,73%	Good
18	I avoid giving a detailed explanation/reason for the answer I gave (-)	1	7	26	-	68,38%	Good
	Average					72,05%	Good

Based on Table 10, it is recognized that the average of students' HoM on the indicators of working carefully and precisely and reaching high standards are 72.05% which are in the good category. The students observe the characteristics of the existing data/information before doing calculus proofs. They also provide detailed explanations/reasons for the answers given.

Table 11. HoM Questionnaire Result Data Based on Indicators: Sharply Utilizing Senses, Thinking Intuitively, and Making Estimated Solutions.

No	Statement	VA	A	D	VD	Percentage	Interpretation

19	I make estimates based on past experience and available data (+)	1	28	5	-	72,06%	Good
20	I make general assumptions based on limited cases (-)	1	22	11	-	57,35%	Fairly Good
	Average					64,7%	Good

Based on Table 11, it is obtained that the average students' HoM on the indicators of using the senses sharply, thinking intuitively, and making approximate solutions are 64.7% which are in the good category. The students have been able to make estimates based on past experience and available data. They are also quite good at making general assumptions based on a wider case.

Table 12. HoM Questionnaire Result Data Based on Indicators: Creating, Imagining, and Innovating.

No	Statement	VA	A	D	VD	Percentage	Interpretation
21	Imagining in calculus is not appropriate (-)	4	18	12	-	55,88%	Fairly Good
22	Looking for non-standard ways but still meet the rules are considered creative (+)	5	24	5	-	75%	Good
	Average					65,44%	Good

Based on Table 12, it is found that the average students' HoM on the indicators of creating, imagining, and innovating are 65.44% which are in the good category. Students are good enough to think that fantasizing in calculus is something necessary. They also believe that looking for non-standard methods is considered creative as long as they are in line the rules is considered creative.

Table 13. HoM Questionnaire Result Data Based on Indicators: Enthusiastic in Responding.

No	Statement	VA	A	D	VD	Percentage	Interpretation
23	I'm passionate about answering any simple calculus question (+)	4	27	3	-	75,73%	Good
24	I'm lazy to answer simple calculus questions (-)	1	4	26	3	72,79%	Good
	Average					74,26%	Good

Based on Table 13, it is known that the average students' HoM on the indicators of enthusiasm in responding are 74.26% which are in the good category. The students are eager to answer any simple calculus questions. They are also not lazy to answer simple calculus questions.

Table 14. Data on HoM Questionnaire Results Based on Indicators: Dare to Take Responsibility and Face Risks.

No	Statement	VA	A	D	VD	Percentage	Interpretation
25	I dare to try a new way of solving calculus even though there is a possibility of failure. (+)	4	30	-	-	77,94%	Good
26	I avoid difficult calculus tasks because of the many risks (-)	2	6	26	-	67,65%	Good
	Average					72,79%	Good

Based on Table 14, it is acknoledged that the average students' HoM on the indicators of being responsible and facing risks are 72.79% which are in the good category. Students are brave enough to try new ways of solving calculus even though there is a possibility of failure. Morover, they also also do difficult calculus tasks even though there are many risks.

Table 15. Data on HoM Questionnaire Results Based on Indicators: Humorous.

No	Statement	VA	A	D	VD	Percentage	Interpretation
27	I feel depressed during calculus learning (-)	4	4	25	1	66,91%	Good
28	I try to stay cheerful when I face difficult calculus problems (+)	13	21	-	-	84,56%	Very Good
	Average					75,73%	Good

Based on Table 15, it is recognized that the average students' HoM on the humorous indicator are 75.73% which are in the good category. It is good that students do not feel pressured during calculus learning, and it is very good they try to stay cheerful when facing difficult calculus problems.

Table 16. Data on HoM Questionnaire Results Based on Indicators: Interdependent Thinking.

No	Statement	VA	A	D	VD	Percentage	Interpretation
29	Calculus group work	8	23	2	1	77,94%	Good

	is beneficial for all members (+)						
30	The success of the calculus study group is the result of each individual (-)	-	28	5	1	55,15%	Fairly Good
	Average					66,54%	Good

Based on Table 16, it is revealed that the average students' HoM on the indicators of interdependent thinking are 66.54% which are in the good category. The students state that the calculus group work is beneficial for all members. They also assert that the success of the calculus study group is the result of each individual. This also means that students have thought that they are interdependent in learning calculus.

Table 17. Data on HoM Questionnaire Results Based on Indicators: Sustainable Learning.

No	Statement	VA	A	D	VD	Percentage	Interpretation
31	Calculus trains individuals to think rationally (+)	5	29	-	-	78,68%	Good
32	Learn calculus regardless of future demands (-)	-	25	7	2	58,09%	Fairly Good
	Rata-rata					68,38%	Good

Based on Table 17, it is known that the average students' HoM on the indicators of continuous learning are 68.38% which are in the good category. The students state that calculus trains individuals to think rationally. They also confess that learning calculus is influenced by future demands.

Based on the aforementioned results of the data from the questionnaires, it is revealed that the students' HoM in learning calculus amidst COVID-19 the pandemic are in the percentage interval of 71.76% with good interpretation. This shows that the HoM of students of the Mathematics Education Study Program at a private university in Cirebon Regency in learning calculus during the pandemic is considered good in terms of the percentage. This also indicates that students of the mathematics education study program have good thinking habits in learning calculus even though they have to adapt to the online learning system during the pandemic. However, this affective ability still needs improvements because the habit of thinking is a behavior that is formed based on the learning process in a relatively long time. Suherman et al (2003) stated that the formation of affective areas (attitudes) as a result of learning is relatively slower than the formation

of cognitive and psychomotor areas, because changes in affective areas (attitudes) take longer and are the result of formation in cognitive and psychomotor areas. Furthermore, Gagne (Suherman et al, 2003) states that the affective area (attitude) is a physical object that is indirect, while the cognitive and psychomotor areas are direct objects, which can be directly owned by students after teaching and learning activities take place.

When compared to the students' HoM at other universities both during and before the pandemic, the HoM of students from the Mathematics Education Study Program at a private university in Cirebon Regency is not much different. This is shown based on the results of several HoM studies that have been carried out by other researchers. Among them are the HoM research conducted by Defitriani (2019) that shows that the habits of mind students of Mathematics Education Study Program, FKIP, Batanghari Jambi University are in the good category with a percentage of 75.39%. Likewise, the results of the HoM research conducted by Wulan, et al., (2020) that indicates habits of mind of students of mathematics education study program at a private university in the city of Cirebon have a robust grouping with an average percentage achievement of 78.6%.

CONCLUSION

Based on the results of the study, it can be elucidated that the Mathematics Education Study Program students' HoM at a private university in Cirebon Regency who contract calculus lessons during the COVID-19 pandemic is considered good signified by the percentage of 71.76%. However, further development is still required in the learning proces because students' affective abilities are developed in a relatively long time. Therefore, it is suggested to be able to develop habits of mind further in the calculus learning process during the pandemic by involving various appropriate learning strategies/models.

ACKNOWLEDGMENTS (Optional)

The author, hereby, would like to state that I author have received no direct funding for this researcch

REFERENCES

Apriandi, D., & Krisdiana, I. (2016). Analisis Kesulitan Mahasiswa dalam Memahami Materi Integral Lipat Dua pada Koordinat Polar Mata Kuliah Kalkulus Lanjut. *Al-Jabar : Jurnal Pendidikan Matematika*, *7*(2), 123–134. https://doi.org/10.24042/ajpm.v7i2.19

Ariawan, R., & Zetriuslita, Z. (2019). Hubungan Gaya Kognitif dan Habit ' s of Mind terhadap kemampuan berpikir kritis matematis. *JURING (Journal for Research in …*, *2*(4), 363–370. http://ejournal.uin-suska.ac.id/index.php/juring/article/view/8772

Basilaia, G., & Kvavadze, D. (2020). Transition to Online Education in Schools during a SARS-CoV-2 Coronavirus (COVID-19) Pandemic in Georgia. *Pedagogical Research*, *5*(4). https://doi.org/10.29333/pr/7937

Bentley, Y., Selassie, H., & Shegunshi, A. (2012). Design and Evaluation of Student-focused e-learning. *Elcetronic Journal of E-Learning*. 10(1), 1–12. https://doi.org/10.1007/s10648013-9243-1.

Bungin, B. (2005). *Metodologi Penelitian Kuantitatif: Komunikasi, Ekonomi, dan Kebijakan Publik Serta Ilmu-Ilmu Sosial Lainnya.* Jakarta: Kencana.

Cuoco, A., Paul Goldenberg, E., & Mark, J. (1996). Habits of mind: An organizing principle for mathematics curricula. *Journal of Mathematical Behavior*, *15*(4), 375–402. https://doi.org/10.1016/S0732-3123(96)90023-1

Costa, A. dan Kallick, B. (2008). *Describing 16 Habits of Mind*. [Online]. Tersedia: http://www.habits-of-mind.net/pdf/16HOM2.pdf.

Costa, A. L. (2001). *"Habits of Mind"* dalam A. L. Costa (Ed.) (2001). *Developing Minds. A Resource Book for Teaching Thinking.* 3 rd Edition. Assosiation for Supervision and Curriculum Development. Virginia USA.

Dwirahayu, G., Kustiawati, D., & Bidari, I. (2018). Pengaruh Habits of Mind. *Jppm*, *11*(2), 91–104.

Handayani, A. D. (2015). Mathematical Habits of Mind : Urgensi dan Penerapannya dalam Pembelajaran Matematika. *Jurnal Math Educator Nusantara*, *1*(2), 223–230.

Hendriana, H., dkk. (2017). *Hard Skills dan Soft Skills: Matematik Siswa.* Bandung: Refika Aditama.

Herliandry, L. D., Nurhasanah, Suban, M. E., & Heru, K. (2020). Transformasi Media Pembelajaran Pada Masa Pandemi Covid-19. *Jurnal Teknologi Pendidikan*, *22*(1), 65–70. http://journal.unj.ac.id/unj/index.php/jtp

Miliyawati, B. (2014). Urgensi Strategi Disposition Habits of Mind Matematis. *Infinity Journal*, *3*(2), 174. https://doi.org/10.22460/infinity.v3i2.62

Prasad, P. V. (2020). Using Revision and Specifications Grading to Develop Students' Mathematical Habits of Mind. *Primus*, *30*(8–10), 908–925. https://doi.org/10.1080/10511970.2019.1709589

Qadarsih, N. D. (2017). Pengaruh Kebiasaan Pikiran (Habits of Mind) Terhadap. *Jurnal*, *2*(2), 181–185.

Rahmawati, A. (2017). Analisis Kesalahan Mahasiswa Pendidikan Matematika Dalam Menyelesaikan Soal Pertidaksamaan Pada Mata Kuliah Kalkulus I. *Al-Jabar : Jurnal Pendidikan Matematika*, *8*(1), 81–90. https://doi.org/10.24042/ajpm.v8i1.957

Riduan. (2009). *Metode dan Teknik Penyusunan Proposal Penelitian*. Bandung: Alfabeta

Slavin, R.E (2000). *Education Psychology: Theory and Practice*. Sixth Edition. Boston: Allyn and Bacon.

Suherman, E. dkk. (2003). *Evaluasi Pembelajaran Matematika*. Individual Textbook. Bandung: Jurusan FPMIPA UPI Bandung.

Umar, W. (2013). *Pengembangan Mathematical Thinking Berorientasi pada Gaya Kognitif dan Budaya Siswa*. Makalah diterbitkan pada jurnal pendidikan Matematika UM. Malang

Zhu, X., & Liu, J. (2020). *Education in and After Covid-19 : Immediate Responses and Long-Term Visions*.