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The students' habits of mind in biology learning animalia material

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ABSTRACT

This study aims to determine students' habits of mind in learning biology Animalia material at Class X MIPA 5 SMAN 1 Indramayu. There is still little information about the habits of mind in biology learning that students currently have and habits of mind in biology learning are still less considered and developed. This research is a type of qualitative research. The subjects of this study were students in class X MIPA 5 SMAN I Indramayu consisting of 32 respondents, using a purposive sampling technique. The instruments used were habits of mind questionnaire sheet with a Likert scale measurement and a validated unstructured interview sheet. Habits of Mind in the study consisted of 12 indicators, adapted from Costa and Callik, and Marzano. It consists of primary data and secondary data. Data collection techniques were conducted by distributing questionnaires to students and filling out a list of interview questions. Data analysis has three stages: data reduction, data display, and conclusion drawing/verification. The Miles & Huberman model was used as a data analysis technique. This type of interactive model has three stages, namely: data reduction, data display, and conclusion drawing/verification. The results showed that students' habits of mind in class X MIPA 5 SMAN 1 Indramayu in learning biology material Animalia, in general, is included in the very good category with a percentage level of 85%. This means that students in class X MIPA 5 SMAN 1 Indramayu already have a very good habit of mind attitude in the biology learning process.

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INTRODUCTION

Education is currently entering the 21st century which requires a skill possessed by someone that consists of critical thinking, creative, collaboration, and communication skills. It is called as 4C skills (Suharyat et al., 2022). Today, everyone should have 21st-century skills as they will help in solving problems in life (Kuloglu & Karabekmez, 2022). Education in the 21st century aims to build students' intelligence in learning so that they can solve the problems around them (Insyasiska et al., 2017). 21st-century skills can be trained through innovative learning, by adopting the latest educational research results, the use of technology, and adapting to the development of the world (Joynes et al., 2019). 4C skills can be integrated with science learning where students can solve various problems encountered in their environment (Jannah & Atmojo, 2022).

Quality learning can equip students to face future challenges. One of the indicators of quality learning is to improve students' independent learning and develop their habits of thinking. (Mashudi,

2021). A teacher's responsibility is to direct students to become active and innovative. One of the learning activities that require habits of mind is learning biology, which emphasizes mastery of material concepts, principles, facts, and evidence. The importance of having habits of mind in learning biology is the ability of students to construct and use their knowledge appropriately according to the problems faced so that students can think effectively during the learning process (Isfiani, 2016).

In learning biology, the characteristics of biological materials tend to be abstract so it requires the students to develop habits of mind. In biology, the students should learn many materials concepts and use Latin, one of which is Animalia material. Animalia material is a difficult material (Agustina, 2017). It is also stated by Alawiyah et al., (2016) that the invertebrate sub-material is challenging. The teacher mentioned that the sub-material is considered difficult to understand because of the broad scope of material, difficulty in understanding Latin, difficulty in determining the role, classification, and describing the characteristics of the Phylum, and the limited learning time provided. This is in line with the facts, the results of interviews with biology teachers in SMAN 1 Indramayu reported that Animalia material is difficult to learn by students because there are many foreign terms. Students find it difficult to describe the characteristics of each Phylum of lower animalia such as Porifera, Coelenterata, and Cnidaria. They lack of understanding of the terms. Students find it easier to distinguish vertebrate animals from invertebrates because they are difficult to memorize and use a lot of Latin. In fact, some students still have difficulty distinguishing between vertebrates and invertebrates (A'yun & Erman, 2019). Therefore, a habit of mind is needed to be an alternative in solving student learning difficulties, especially in learning biology.

Yanti et al., (2021) stated that in conventional biology learning activities, the learning process is usually teacher-centered, they always use the question-and-answer method, where questions are rarely asked by students, and learning activities in the classroom are dominated by note-taking activities. As a result, students become passive and unable to develop students' habits of mind in the learning process. Therefore, students need to have good thinking habits to be able to answer all problems that arise in learning so that they can solve problems as expected. By having good thinking habits, students can overcome various challenges and solve problems faced in biology learning.

Habits of mind are an important aspect that supports learning biology. According to Costa & Kallick (2008), habits of mind are characteristic of what intelligent people do when facing a problem whose solution cannot be known easily. This habit of thinking is related to a person's intellectual process, where patterns of behavior lead to productive actions. This can be seen when students consciously or unconsciously form intelligent patterns of behavior when they encounter doubts in solving problems. Therefore, it is this habit of thinking that will try to help in processing their knowledge in solving problems.

Marita (2014) in her research mentioned that the habit of thinking has not been formed in everyday life. In general, the emergence of habits of mind in students of class IX SMAN 1 Pemalang is in the low category based on the observation results, which is 56%. In her research, five indicators are in a good category: regulating the heart; utilizing old experiences to form new knowledge; utilizing the senses in collecting and processing data; creating, fantasizing, and innovating; daring to

take responsibility and bear risks. According to him, the ability of this habit of thinking requires a long learning process and must be integrated with the habit of thinking.

Isfiani (2016) reported that the level of thinking habits of students in grades XI and XII at four Bandung State Senior High Schools is in the medium category. She reported that there are still three indicators in the low category, namely humor, metacognitive thinking, and continuous learning. According to her, habits of mind learning have an impact on cognitive control anxiety which triggers efforts, strategies, and mindsets that are effective and efficient in the learning process.

Dwirahayu et al., (2017) reported that the process of the habit of thinking is still undeveloped. The tendency of thinking habits in students of MTs Negeri 32 Jakarta is very good with a percentage of 97% in the category of thinking about thinking. Meanwhile, through the questionnaire results, the overall tendency of students' habits of mind is in the survival category with a percentage of 75.56%. In this study, it is mentioned that teachers can develop the knowledge, attitudes, and abilities of their students as a whole, and the potential for students to gain knowledge in mathematics will be higher or better.

Habits of mind in students provide excellent benefits. The implementation of habits of mind will help students to always utilize their time effectively and hone their intelligence. Directed, organized, and precise study habits are very important for students, both in everyday life and when facing final exams. In structured learning, students have the opportunity to acquire knowledge in a meaningful way (Isfiani, 2016). Therefore, habits of mind are very important for students as a tool to help them organize their learning so that they can solve problems related to their learning.

The purpose of this study is to determine the habits of mind of students in learning biology material Animalia in class X MIPA 5 SMAN 1 Indramayu. Knowing students' habits of mind, the teacher will determine the appropriate learning method/strategy/approach/model, so he or she can create appropriate and effective learning. Given the importance of the right habits of mind in learning, it is necessary to have data related to students' habits of mind in learning biology as information for the improvement and or improvement of biology learning outcomes.

The results of the study are used as a source of information to find out one aspect of student character building: the character habits of mind, how the habits of mind influence, and the importance of improving these habits of mind in learning biology. Those data are the source of information to find out aspects of student character building, they are habits of mind in problem-solving skills in biology learning. It is also useful as an innovation in understanding the character of students through understanding the habits of mind on learning outcomes in biology learning.

METHOD

The research method used in this research is qualitative research method. The subject of this research was determined using purposive sampling, which is a data collection technique with certain considerations (Sugiono, 2022). The purposive sampling technique was selected based on considerations made by researchers based on certain criteria: class conditions, teacher suggestions, and the number of students. The subjects in this study were 32 students of class X MIPA 5 SMAN 1 Indramayu in the even semester of the 2022/2023 school year.

The instruments used in this study were a questionnaire sheet and an unstructured interview sheet. The questionnaire instrument was used to determine students' habits of mind in learning biology. Habits of Mind was measured through a questionnaire adapted from Habits of Mind according to Costa and Kallick (2008) and Marzano (Moma et al., 2018). Students filled out the Habits of Mind questionnaire on the Google form application using a cellphone at the first meeting and the second meeting filling it in person. The questionnaire sheet uses a Likert scale scoring rubric of 1 to 4, consisting of 24 statements and 12 indicators of habits of mind. The Habits of Mind questionnaire was filled in after the biology lesson was over. In this study, the researcher was assisted by a biology teacher at SMAN 1 Indramayu to deliver the questionnaire instrument link to students selected by the teacher after learning activities. The interview sheet was used as supporting data. Researchers conducted interviews directly/offline with biology teachers at SMA Negeri 1 Indramayu, to find out the description of students' habits of mind in learning biology in Animalia material class X MIPA 5. The results of the interview were identified and then analyzed so that the results of the interview could be made conclusions in the form of descriptions.

The data from the Habits of Mind questionnaire were then analyzed descriptively and qualitatively by determining the percentage of each indicator. The data obtained were processed and analyzed to group students into habits of mind categories and to determine students' habits of mind in learning biology material animalia class X MIPA 5 SMAN 1 Indramayu. To facilitate analyzing the data, descriptive analysis criteria according to Ridwan in (Oktaviani & Firmansyah, 2021).

Table 1. Descriptive analysis criteria

Criteria	Percentage
Very Good	76% - 100%
Good	51% - 75%
Low	26% - 50%
Very Low	1% - 25%

RESULTS AND DISCUSSION

The following are the results of data analysis of students' habits of mind in learning biology Animalia material. Table 2 shows that in the first meeting, the students' habits of mind had the largest percentage in the indicator of listening to other people's opinions with a sense of empathy (Listening with understanding and empathy) with very good criteria. While the lowest percentage is in the indicator of persisting, but it is still included in the excellent criteria. Meanwhile, the second meeting showed that students' habits of mind had the highest percentage in the indicators of questioning and problem posing, and critical thinking with very good criteria. While the lowest percentage was in the indicators of creating, fantasizing, and innovating with good criteria. The first indicator of students' habits of mind: persisting, is in the very good category with a percentage of 83%.

The first indicator of students' habits of mind, namely persisting, is included in the very good category with a percentage of 83%. At the first meeting the students' habits of mind were in the very good category. Whereas at the second meeting, it was in the very good category, in this case students have habits of mind that are shown by the attitude of persevering in doing the task until it is finished and not giving up easily: the group task of making canva, articles, and filling in LKPD. This is in accordance with the results of an interview with the biology teacher of class X MIPA 5, the teacher stated that most students continue to work on assignments even though the assigned tasks are

difficult, they do it in various ways, such as asking friends or teachers and only a few students are still shy and do not dare to ask friends in group discussion activities. Meanwhile, the results of the interview with the X MIPA 5 homeroom the teacher. It is found that only a small number of students had a sense of responsibility and played an active role in group activities. As supported by Dwirahayu et al., (2018), in the learning process, students who have the habit of persisting will be able to learn seriously and not easily despair when facing problems that are not immediately known to be solved. This is in line with the opinion of Ayu & Katminingsih (2022) that having this type of habitual thinking attitude is a challenge for students to make it easier. Students are able to gather evidence to show that their problem-solving strategy works, and if it fails, they know other alternative strategies. Students have a systematic method for analyzing problems, which includes knowing how to start, what steps to take, what data to generate or collect, and what resources are available to help.

Table 2. Data on the average percentage questionnaire results of the first and second meetings of students' habits of mind in animalia learning

No.	Indicator	% P1	Criteria	% P2	Criteria	Average % P1 & P2	Criteria
1	Persisting	78%	Very Good	88%	Very Good	83%	Very Good
2	Listening with understanding and empathy	91%	Very Good	85%	Very Good	88%	Very Good
3	Metacognition	86%	Very Good	88%	Very Good	87%	Very Good
4	Striving for accuracy	90%	Very Good	88%	Very Good	89%	Very Good
5	Questioning and problem-posing	83%	Very Good	89%	Very Good	86%	Very Good
6	Thinking and Communication with Clarity and precision	77%	Very Good	75%	Very Good	76%	Very Good
7	Creating, imagining, and innovating	84%	Very Good	72%	Very Good	78%	Very Good
8	Responding with wonderment and awe	89%	Very Good	80%	Very Good	84%	Very Good
9	Taking responsible risk	88%	Very Good	86%	Very Good	87%	Very Good
10	Self-regulation	87%	Very Good	88%	Very Good	87%	Very Good
11	Critical thinking	84%	Very Good	89%	Very Good	86%	Very Good
12	Creative thinking	78%	Very Good	84%	Very Good	84%	Very Good

The second indicator of students' habits of mind is listening to other people's opinions with a sense of empathy (Listening with understanding and empathy). It gains percentage 88% with very good category. At the first meeting, the students' habits of mind were in the very good category. While at the second meeting it was in the very good category in this case students have habits of mind are shown by an attitude of being willing to accept other people's views, namely 1) group assignments to make canva, articles, and fill in LKPD, 2) discussion activities, question and answer sessions and presentations. Discussion activities, question and answer sessions and presentations. This is in accordance with the results of the biology teacher interview of class X MIPA 5. She stated that almost all students always listen to input, suggestions or ideas from their group members when doing group assignments and most students always listen when their own group friends or other groups are

making presentations. Meanwhile, the results of the X MIPA 5 homeroom teacher interview, it is found that almost all students were willing to listen to and appreciate other people's suggestions or input during learning. This is in accordance with the opinion of Juhri et al., (2018) which stated that one of the main requirements in having an empathetic attitude is the ability of humans to listen or understand first before being listened to or understood by others. Empathic listening means listening based on awareness to understand with feelings, care, and attention to the person speaking. By understanding and listening to others first, humans can build the openness and trust needed to build cooperation or synergy with others (Masdul, 2018; Makmun, 2013).

The third indicator of students' habits of mind is metacognition. The result shows that is in the very good category with a percentage of 87%. At the first meeting the students' habits of mind were in the very good category. While at the second meeting including the excellent category in this case students have habits of mind that are shown by the attitude of thinking about thinking, being more concerned about thoughts, feelings, actions and taking into account their influence on others, namely group assignments to make canva, articles, and fill out LKPD. This is in accordance with the results of the biology teacher interview of class X MIPA 5. She stated that only a few students who are passive, less actively involved in providing suggestions or input when working on group assignments and most students propose to divide the task according to the ability of the members to make it easier to do group assignments. Meanwhile, the results of the interview with the homeroom teacher of class X MIPA 5. It is reported that only a small number of students were active in group activities. This is in accordance with the opinion of Hayatun et al., (2015) which states that metacognitive ability is one of the things that is very important for students, because when students are able to monitor their learning process consciously, they will be more confident and more independent in learning. Metacognitive ability has an important role in regulating and controlling one's cognitive processes by learning and thinking, so that one's learning and thinking processes become more effective and efficient (Arifin & Zaenab, 2014).

The fourth indicator of students' habits of mind is striving for accuracy. It is in the very good category with a percentage of 89%. At the first meeting the students' habits of mind were in the very good category. While at the second meeting, it is included as the excellent category. In this case, the students have habits of mind that are shown by setting high standards and always looking for ways to improve, namely group assignments to make canva, articles, and fill out LKPD. This is in accordance with the results of the interview with the biology teacher of class X MIPA 5, namely that almost all students can follow the teacher's instructions and instructions when working on assignments, both individual and group assignments, and most students re-check every task that has been completed before collecting it. Meanwhile, the results of the interview with the homeroom teacher of class X MIPA 5 are that most students have an attitude of obeying existing regulations and are on time in doing assignments and most students have a meticulous attitude in doing group assignments. As said by Salwah (2014), the students must be trained to always be thorough in solving problems, so it becomes a habit to always be precise and accurate in doing anything. In addition, Miliyawati (2014) says that students with these characteristics will respect the work of others, work conscientiously, strive to achieve high standards, and learn continuously, and try to improve what they do to obtain more accurate results.

The fifth indicator of students' habits of mind is questioning and problem posing effectively, is in the very good category with a percentage of 86%. At the first meeting the students' habits of mind were in the very good category. While at the second meeting it was in the very good category in this case students have habits of mind which are shown by the attitude of finding problem solving, searching for data and answers, namely: 1) question and answer sessions, discussions, and presentations, 2) group assignments to make canvases, articles, and fill out LKPD. This is in accordance with the results of the interview with the biology teacher of class X MIPA 5. She reported that most students ask the teacher or friends when they do not understand the assignment given and only a small number of students or group members who do not try to complete the group assignment to completion, so that it must be done by their friends. Meanwhile, the results of the interview with the X MIPA 5 homeroom teacher, it is found that most students are active and dare to ask questions in completing group or individual assignments. As stated by Lestari (2015) that questioning skills have an important role in increasing student participation in teaching and learning activities, arousing students' interest and curiosity about a problem being faced or discussed, and developing students' active learning patterns and ways. By asking questions, students are trained to think, develop the information and knowledge they get, and will train students' personalities to be brave and confident. This is in line with the opinion of Miliyawati (2014) that developing the habit of asking questions can foster creative thinking skills.

The sixth indicator of students' habits of mind is thinking and communicating with clarity and precision. It is in the very good category with a percentage of 76%. At the first meeting, the students' habits of mind were categorized as very good. While at the second meeting it was in the good category in this case students have habits of mind which are shown by the attitude of trying to communicate orally and in writing accurately, namely question and answer sessions and discussions/presentations. This is in accordance with the results of the interview with the biology teacher of class X MIPA 5, she reported that most students when in their groups try to actively ask their friends if there is something that has not been understood and most students try to answer questions when there are questions from the teacher. However, others will answer if appointed. Meanwhile, the results of the interview with the X MIPA 5 homeroom teacher, it is reported that most students can play an active role in communicating in their group activities. This is in accordance with the opinion of Mahadi (2021), he stated that in the learning process, communication is said to be effective if the learning material delivered by the teacher can be received, can be digested and understood properly and there is feedback from students. In line with the opinion Burhanuddin (Mahadi, 2021), that the learning process is only effective if there are quality relationships and communication between teachers and students and students with students. The seventh indicator of students' habits of mind, namely creating, imagining, and innovating, is in the very good category with a percentage of 78%. At the first meeting, the students' habits of mind were categorized as very good. Whereas at the second meeting it was in the good category, in this case students have habits of mind that are shown by the attitude of choosing new ideas and ideas, namely the group task of making canva or article products. This is in accordance with the results of the interview with the biology teacher of class X MIPA 5, she reported that only a few students or members who are less responsible in completing group assignments even though they are in accordance with their group

agreement and only a few students or members who do their group assignments optimally and better than expected. Meanwhile, the results of the interview with the X MIPA 5 homeroom teacher, it is found that only a small number of students were involved and played a role in providing ideas for completing group assignments. This is in accordance with the opinion Costa & Kallick (2008) states that a creative person will try to understand solutions to different problems, they research possible alternative solutions from various angles. They usually focus on various roles by using analogies and imagining that they are the object under consideration. Such people are open to receiving criticism or judgment from others. Besides that, Maulana (2023) stated that a creative and innovative learning process is expected to create an atmosphere where students learn with new methods regularly, question them, and think of new ideas on their own and help to develop students' skills at school.

The eighth indicator of students' habits of mind is being eager to respond (Responding with wonderment and awe). It is in the very good category with a percentage of 84%. At the first meeting the students' habits of mind were in the very good category. While at the second meeting it was in the very good category in this case students have habits of mind that are shown by having an attitude of curiosity about mysteries in nature, namely listening to videos and or PPT. This is in accordance with the results of the interview with the biology teacher of class X MIPA 5, she reported that most students actively ask when there is an explanation from the teacher that has not been understood and almost all students pay attention to the teacher's explanation during biology learning. Meanwhile, the results of the X MIPA 5 homeroom teacher interview, it is found that most students have an attitude of curiosity or ask when there is something that is not understood during learning. This is in accordance with the opinion of Lepper (Arianti, 2018) stated that students are basically motivated to do an activity for themselves because they want to get pleasure from the lesson, or feel their needs are met. Some students feel more excited and motivated to carry out learning to get awards or avoid punishment from outside themselves, such as: grades, awards, or praise given by the teacher (Wulandari et al., 2015).

The ninth indicator of students' habits of mind, namely the courage to take responsibility and bear risks, is in the very good category with a percentage of 87%. At the first meeting the students' habits of mind were in the very good category. Whereas at the second meeting it was in the very good category, in this case students have habits of mind that are shown by taking responsible risks, namely group assignments to make canvases, article products, filling in LKPD and individual assignments. This is in accordance with the results of the interview with the biology teacher of class X MIPA 5, she reported that only a small number of students who are late in submitting biology assignments and only a small number of students who do not want to try to work until completion, no matter the score is not optimal. Meanwhile, the results of the interview with the homeroom teacher of class X MIPA 5, it is found that most students are on time in doing group or individual assignments. This is in accordance with the opinion of Miliyawati (2014), which states that someone who has these characteristics is not afraid of failure, they can accept uncertainty accompanied by estimated risks. According to Pratiwi (2015) responsibility is an important element for the development of character education because responsibility is the attitude and behavior of a person to carry out his duties and obligations, which he should do, towards himself, society, the environment (natural, social, and cultural), the state and God Almighty.

The tenth indicator of students' habits of mind is learning independence (Self regulation). It is in the very good category with a percentage of 87%. At the first meeting the students' habits of mind were in the very good category. While at the second meeting it was in the very good category in this case students had habits of mind which were shown by: 1) the attitude of making plans effectively, and 2) realizing and using the necessary sources of information, namely the group task of making canva or article products / filling in LKPD. This is in accordance with the results of the interview with the biology teacher of class X MIPA 5, she reported that most students or their groups always divide the task according to the ability of the members to make it easier to do the task and almost all students always bring learning tools (animalia package books, internet devices, and e-books). Meanwhile, the results of the interview with the X MIPA 5 homeroom teacher. It is found that most students have an organized or disciplined attitude in doing assignments. This is in accordance with the opinion of (Nasution et al., 2018; Pratiwi et al., 2016), they stated that learning independence is needed in the education system, in order to achieve learning objectives that emphasize active students in developing their potential. This is because students can control the various ways of learning that need to be taken to achieve achievement results according to their wishes. Achieving optimal learning achievement in school in the student learning process can be obtained by learning independence. This is in line with what is said by Hidayat & Sutirna (2019) that with learning independence students will have the initiative in learning so that students will be more prepared when faced with problems in learning.

The eleventh indicator of students' habits of mind is critical thinking. It is in the very good category with a percentage of 86%. At the first meeting the students' habits of mind were in the very good category. While at the second meeting it was in the very good category in this case students have habits of mind which are shown by: 1) a clear attitude and seek clarity, and 2) are open, namely group assignments to make canvases, article products, and fill in LKPD and individual assignments. This is in accordance with the results of the interview with the biology teacher of class X MIPA 5, she reported that most students are willing and brave to ask the teacher or friends when there are things that are not understood, all students give freedom to their friends in providing ideas or opinions in doing assignments. Meanwhile, the results of the interview with the X MIPA 5 homeroom teacher are that most students dare to ask the teacher when there are things that are not understood during learning and almost all students want to listen to other people's suggestions or opinions during learning. As said by Cheong & Cheung (Agnafia, 2019) and Peter (Putri et al., 2018) stated that critical thinking has an important role in preparing students to solve problems, explain reasons and make evaluations of information. This is in line with Tsui's opinion (Agustina, 2019) critical thinking is important for students' future, given that it prepares students to face the challenges that will arise in their lives.

The twelfth indicator of students' habits of mind is creative thinking, it is in the very good category with a percentage of 84%. At the first meeting the students' habits of mind were in the very good category. While at the second meeting it was in the very good category in this case students have habits of mind which are shown by: 1) the attitude of being able to involve themselves in the task even though the answers and solutions are not immediately apparent, and 2) make the maximum effort of their abilities and knowledge, namely the group task of making canva or article products /

filling LKPD. This is in accordance with the results of an interview with the biology teacher of class X MIPA 5, namely that almost all students are involved in contributing to group work and only a small number of students or members do not provide ideas or opinions in working on group assignments. Meanwhile, the results of the X MIPA 5 homeroom teacher interview were that most students were willing to help and be involved in working on group assignments. As said by Listiani (2020) that the ability to think creatively is an important thing for students, especially in the teaching and learning process. Through creative thinking skills, students are required to be able to understand, master and solve the problems they face. In solving a problem, students are expected to come up with new ideas or solutions that are creative in analyzing and solving these problems. (Febrianingsih, 2022). The data from the research results and discussion of each indicator of habits of mind and strengthened by the results of interviews, show that the habits of mind of students of class X MIPA 5 SMAN 1 Indramayu in the 2022/2023 academic year are very good.

CONCLUSION

The results of data processing and analysis as well as discussion can be determined the conclusion of the research is the habits of mind of students in learning biology material animalia class X MIPA 5 SMAN 1 Indramayu in general is in the category of very good. This shows that students in class X MIPA 5 SMAN 1 Indramayu have very good habits of mind in the learning process. Students' habits of mind in both the first and second meetings were in the excellent category.

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