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Research-Based Learning's Contribution Toward Achievement Motivation in Indonesia's Superior Madrasahs

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Abstract

Superior madrasahs utilize research-based learning to instill a love of knowledge and empathy for the environment and to encourage students to reason critically, creatively, and independently, as outlined in the Merdeka curriculum. This study aims to investigate the impact of research-based learning (RbL) at MAN (Islamic Senior High School) Insan Cendekia Pekalongan on students' achievement motivations. The research method employed is qualitative, with data collected using unstructured interviews, field observations, and documentation. Furthermore, the research instrument was distributed to 95 students who served as the study's initial population via Google Forms, ensuring the possibility of diverse perspectives on research-based learning and achievement motivation. The data was collected from 17 students who participated in the preparation of national scientific work competitions using purposive sampling to investigate data on the need for achievement or accomplishment (nAch) in depth. The findings revealed that research-based learning made a significant contribution to students' achievement motivation, as evidenced by the desire to do something more than ordinary learning (nAch1), the desire to solve problems in research (nAch2), the desire to take personal responsibility in research (nAch3), and the desire to perform well in research (nAch4). Overall, RbL helps students think critically, creatively, and independently, which is a critical component of the Merdeka curriculum.

Keywords: Merdeka curriculum, Achievement motivation, Research-based learning

Abstrak

Pembelajaran berbasis riset di madrasah unggul dipersiapkan sebagai sarana untuk menanamkan cinta ilmu dan empati terhadap lingkungan serta mendorong siswa bernalar kritis, kreatif, dan mandiri yang menjadi prinsip dalam kurikulum merdeka. Penelitian ini bertujuan untuk mengkaji kontribusi dari pembelajaran berbasis riset di MAN (Islamic Senior High School) Insan Cendekia Pekalongan terhadap motivasi berprestasi siswa. Metode penelitian yang digunakan adalah kualitatif dengan teknik pengumpulan data melalui wawancara tidak terstruktur, observasi lapangan, dan dokumentasi. Selain itu, instrumen penelitian diberikan kepada 95 siswa yang menjadi populasi awal penelitian dengan menggunakan google formulir untuk memastikan kemungkinan terjadinya keberagaman perspektif tentang pembelajran berbasis riset dan motivasi berprestasi. Selanjutnya pengambilan data dilakukan secara purposive sampling kepada 17 siswa yang mengikuti persiapan lomba karya ilmiah nasional untuk menggali data penacapaian untuk prestasi (nAch) secara mendalam. Hasil penelitian menunjukkan adanya kontribusi signifikan dari pembelajaran berbasis riset terhadap motivasi berprestasi siswa yang

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ditunjukkan dengan adanya keinginan melakukan sesuatu yang lebih dari pembelajaran biasa (nAch1), keinginan memecahkan masalah dalam riset (nAch2), keinginan mengambil tanggung jawab pribadi dalam riset (nAch3), dan keinginan menunjukkan kinerja yang baik dalam riset (nAch4). Secara keseluruhan, RbL berkontribusi memfasilitasi siswa untuk berpikir kritis, kreatif dan mandiri yang menjadi bagian karakter yang diharapakan dalam kurikulum merdeka.

Kata Kunci: *Kurikulum merdeka, Motivasi berprestasi, Pembelajaran berbasis riset*

INTRODUCTION

According to PISA's assessment, Indonesian children have the lowest literacy levels (Rahmani et al., 2021). The solution is presented in the form of the Merdeka curriculum, which is a hot topic in the world of education from Sabang to Merauke, with a vision of superior human resources, competitive, noble character, and high reasoning in literacy and numeracy (Rina Febrian, Muhtadin, 2022). The Merdeka curriculum aims to promote educator interaction and learner collaboration (Song, 2018). The Merdeka curriculum encourages students to develop higher-order thinking skills through project-based activities (Mustapha et al., 2018). Completing project-based tasks assigned by educators promotes interdisciplinary learning (STEM) in the form of applying science, technology, engineering, and mathematics (Tawfik, Graesser, et al., 2020). This learning also fosters social and cognitive development through collaboration and production (Yilmaz et al., 2020). Problem-based learning results in research or action research (Mohamadi, 2018).

Research integrated into learning is an integral part of developing academic competence, and the challenge is the writing competence of students (Yin et al., 2023). The ability to write effectively and efficiently becomes a vital skill for learners (students), requiring more focus, cognition, and perseverance, as well as continuous and conscious efforts from the learners (Dhanya & Alamelu, 2019). Writing activities have a significant impact on learners' cognitive abilities, as well as their depth and breadth of thought (Gong, 2022). The primary objective of writing in research learning is for learners to produce high-quality scientific work with writing habituation as the key (Miles et al., 2018). Writing is a component of literacy in research learning that encourages students to explore various sources of information and incorporate them into properly written scientific papers (Alamri & Alshumaimeri, 2019).

Furthermore, writing literacy requires that students comprehend the text and develop structured thinking skills when writing scientific papers. Students must understand the structure of scientific writing, specifically how to write an introduction, methodology, results, and conclusions. As a result, writing literacy in

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research learning is critical to improving the quality of students' scientific work that is accessible and usable by the public at large (Tyowua, 2023).

Research as a program is now a popular topic not only among students on campuses but also in the lives of madrasah aliyah students (Hidayati, 2019). The discourse on research as a program in the research-based madrasa is launched by the Ministry of Religious Affairs of the Republic of Indonesia. The research discussed in learning in madrasahs aims to instill in students a love of science and empathy for the environment. Another goal is to condition students to not only write but also to become familiar with reading (*Iqra*) as a character trait (Sutarno & Al Jumadi, 2022) and to improve high-level thinking skills (HOTS), which are one of the 21st-century skills that students must possess. The process of research learning stimulates and trains scientific reasoning, which is students' cognitive ability to interpret, analyze, evaluate, argue, and find environmental solutions (Shofiyah et al., 2018). It teaches learners to think scientifically, learn concepts and strategies, be highly socially sensitive, actively participate in problem-solving, and have knowledge and experience in emerging research fields (Sutarno & Al Jumadi, 2022). Research learning in madrasah provides students with cognitive and mental preparation for college life.

Aripin believes that learning research should help students achieve competence through three stages: exposure, experience, and capstone domain (Mahardini et al., 2019). Huber (2014) defines research-based learning as research activities carried out by students in a process of continuous assignments and mentoring (Timiyo & Sriram, 2021). Research learning causes positive changes in students' thinking and emotional skills, which can improve the learning process (Susiani et al., 2018). Sensitivity to the environment is developed through research learning as a result of critical thinking, which is required for 21st-century learning. (Susiani et al., 2018). Research or research-based learning is fascinating because it builds students' understanding when teachers are no longer the sole source of information (Rusydiyah et al., 2020). Furthermore, it takes into account prior knowledge, promotes interaction, and, most importantly, presents experience as a meaningful learning process (Mahardini et al., 2019). Research-based learning also

involves authentic assessment as a process of evaluating learning in a better direction (Kristiana et al., 2022). The research-learning trend has spread to many countries around the world. The US National Science Foundation has used research-based learning to integrate science, technology, engineering, and mathematics (Wessels et al., 2021).

Conceptually, research-based learning has been implemented in German universities using a variety of empirical assessment methods for both educators and students (Behrmann, 2019). Research-based learning promotes independence and responsibility. Similarly, the desired learning arrangements of what, when, where, and how to enhance their learning create autonomy for learners (Awidi & Paynter, 2022). The good practice of research-based learning is the development of a scientific spirit in the nation's generation. This scientific spirit will generate ideas for phenomenal discoveries. To achieve these results, a high level of writing motivation is required. Writing motivation is required to produce quality work because writing is a means of communicating and expressing ideas, thoughts, and feelings through written language (Yulianti et al., 2019). Writing motivation is important because research-based writing can present a problem through investigation, observation, and factual data collection (Anugraheni, 2021).

With writing motivation, scientific rules take the form of scientific works that use scientific methods to discuss problems, present studies in scientific language, and apply scientific principles (Mansyur & Akidah, 2018). The phenomenal findings discovered while reading the literature indeed contribute to the motivation to write in such a way that the world will absorb it. These findings are based on research-based learning, which contributes to the world of education through various research results. Rohim et al. discovered that learning outcomes in experimental classes were superior to learning outcomes in control classes after applying research-based learning (Rohim et al., 2019). Tri Saptuti Susiani et al. discovered, using a qualitative research method, that students' critical thinking skills develop as a result of their ability to interpret, analyze, evaluate, infer, and explain (Susiani et al., 2018). Firma Yudha et al.'s qualitative research revealed that using research-based learning as a method can help students be more creative and

innovative when solving advertising problems (Yudha et al., 2018). Ridlo et al.'s mixed research method yielded a significant t-test score of 0.817 (<0.05), indicating a significant difference in post-test scores. The class with research learning outperformed the control class taught with traditional methods in both post-test and delay post-test (Ridlo et al., 2019). Quality writing in research learning allows students to produce quality writing as a form of learning achievement, as well as participate in scientific competencies. Given the context of the problem, it is interesting to learn how research learning contributes to motivation for student achievement in superior madrasahs.

METHOD

This study employs a qualitative research design with a case study approach to investigate learning in superior madrasas. Data was collected by distributing research instruments via Google Forms to 95 research samples, which served as the initial research population. The initial research population criteria are geographically diverse, with 51 students from urban areas and 44 from rural areas. The goal of collecting data from a population of 95 samples is to ensure the possibility of multiple perspectives.

Table 1.
The Profile of the Informants

No.	Category	Number
1.	Male students	47
2.	Female students	48
3.	Urban area background	51
4.	Rural area background	44

The diverse perspectives are students from urban and rural backgrounds regarding research-based learning and achievement motivation. Knowing earlier will avoid different interpretations. Furthermore, purposive sampling was performed on the 95 data collected, yielding 17 samples. The samples were students preparing to participate in scientific work competitions. Because extensive information retrieval was performed, the data from 17 samples is deemed representative of answering research questions. Purposive sampling, according to Sugiyono, is a technique for determining the number of samples based on specific

criteria (Sugiyono & Setiyawami, 2022). The focus of this study was the students who conducted research-based learning for achievement motivation in national scientific work competition events.

In addition, this study included interviews, observations, and documentation studies. The interviews were unstructured and involved the research learning coordinator, two research mentor teachers, and students who excel at research. Observations were taken during research learning activities on Wednesdays in the third week of May 2023. The observed aspect was ninth-grade students' behavior during research learning activities in class. The documentation assessment took the form of madrasah profile data, Youth Scientific Work achievements, and scientific work reports produced by ninth-grade students in the 2021/2022 academic year who won scientific work competitions, such as MYRES in 2022. The research subject was MAN (Islamic Senior High School) Insan Cendekia Pekalongan, one of Central Java's superior madrasahs that use research-based learning (RbL).

The research instrument comprised several achievement motivation indicators combined with Bloom's digital taxonomy theory. McClelland's theory served as the foundation for the development of achievement motivation indicators. McClelland's motivation theory is based on three needs: achievement, power, and affiliation (Dunn & Moore, 2022).

Table 2.
The Research Instrument of nAch in RbL

Aspect	Statement
Desire to do something more than ordinary learning (nAch1)	1. RbL leads me to learn more than usual 2. RbL leads me to be curious about the research being studied 3. RbL leads me to search the literature about the research being studied 4.
Desire to solve problems in research (nAch2)	1. RbL led me to validate the research being studied. 2. RbL leads me to analyze the research being studied. 3. RbL led me to collaborate and discuss the research being studied with the team and supervisor.
Desire to take personal responsibility in research (nAch3)	1. RbL led me to collect relevant literature on the research being studied. 2. RbL leads me to summarize the literature on the research being studied 3. RbL leads me to process the literature on the research being studied 3.

Desire to perform well in research (nAch4)	1. RbL led me to discover new ideas about the research I was studying. 2. RbL leads me to compare new ideas about the research being studied with previous research. 3. RbL leads me in producing the research being studied.

The need for achievement limits the scope of this study. This limitation is in response to the second goal of RbL activities, which is to achieve success at MAN Insan Cendekia Pekalongan. Student participation in scientific writing events such as MYRES and OPSI is considered an indicator of achievement. The desire for achievement is the drive to exceed, reach standards, and succeed, with a focus on the process of achieving greater success (Mahande et al., 2022). Bloom's digital taxonomy includes the following actions: searching, summarizing, sharing, validating, collaborating, creating, and inventing (Muhayimana et al., 2022).

RESULTS AND DISCUSSIONS

Table 1 shows that the initial research population consisted of students from one batch (eleventh-grade) with diverse geographical backgrounds, 51 from urban and 44 from rural areas. The initial research population consisted of a similar number of male and female students, 47 male and 48 female. It means that different geographical backgrounds did not prevent people from obtaining education and that all genders have equal opportunities to become morally humane (having characters) and achieve autonomy, including at MAN Insan Cendekia Pekalongan. Mary Wollstonecraft emphasized the value of education for both men and women in order to become morally excellent and self-sufficient (Maulid, 2022).

Furthermore, the triangulated data from the interview with the research coordinator revealed that research-based learning is an interpretation of the research madrasah program and a prerequisite for promotion to the twelfth grade. The research madrasah, one of the flagship programs, incorporates research-based learning. Bulan et al. identified fourteen superior programs, one of which is the research madrasah (Bulan et al., 2023).

Furthermore, interviews with two research supervising teachers revealed that in its implementation, RbL was incorporated into a local content subject known

as Scientific Work, which has been taught since the tenth grade, with a trial test in the eleventh grade. Research-based learning (RbL) was implemented in general as a local content subject, specifically for the preparation of national events competed by both government agencies and private institutions. The implementation of RbL was divided into two categories. In general, it was carried out every Wednesday afternoon for 120 minutes (2 hours), with the output being a report on the results of scientific research, which was required for the twelfth grade. Furthermore, RbL was prepared explicitly for national scientific competitions, such as MYRES and OPSI, with additional study guidance outside of general research learning hours.

During observations in research learning classes, students actively discussed the research topics they intended to investigate. They shared responsibilities for collecting and analyzing literature in the form of scientific articles pertinent to their research topics. Another finding from observations in research classes was the development of collaborative and creative research-based learning. Furthermore, even when the teachers were not present in class, the students developed the ability to learn independently. On the other hand, a documentation study of student research reports collected in the madrasah library revealed that research in science was the most commonly conducted.

The graphs below depict the findings from data collection on 17 samples focused on motivation for achievement.

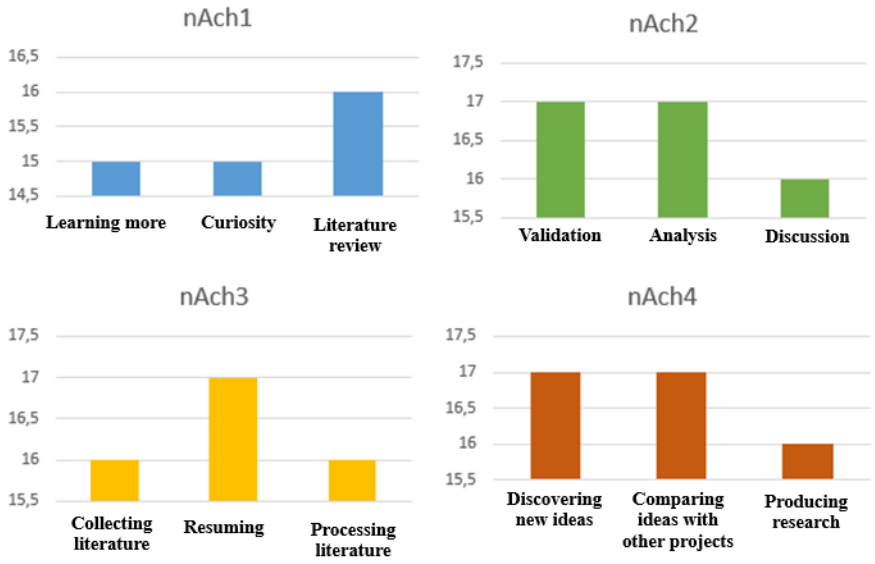

Figure 1.
The Graphs on the Motivation toward Achievement (nAch)

Figure 1.1 depicts motivation toward achievement classified by nAch categories and aspects, which yields diverse results. The nAch1 graph depicts the desire to be able to do something beyond ordinary learning, including factors such as learning more, curiosity, and literature search. The nAch2 graph depicts the desire to be able to solve research problems involving validation, analysis, and collaboration through discussion. The nAch3 graph demonstrates a desire to take personal responsibility in research, including aspects such as collecting, summarizing, and processing literature. nAch4 demonstrates a desire to perform well in research by generating new ideas, comparing them to previous research, and producing research.

RbL Can Motivate to Go beyond Ordinary Learning (nAch1)

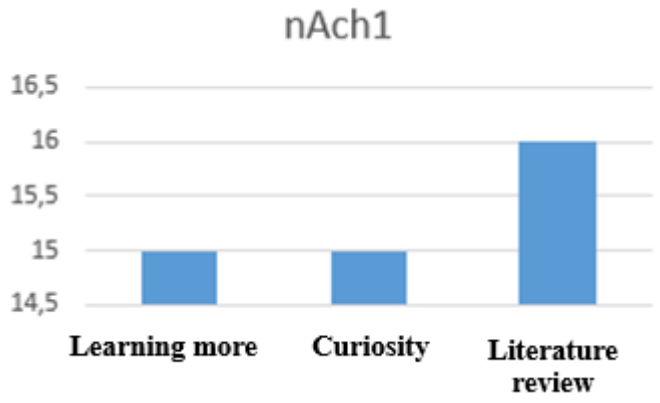

Figure 2.
Graph of Desire to Learn Beyond Ordinary Learning (nAch1)

Figure 1.2 depicts data on the desire to do something beyond the usual learning (nAch1). Desire to learn more, curiosity, and a desire to conduct literature searches are already visible. Fifteen students want to learn more, 15 students are curious, and 17 students want to search for literature.

The first goal of nAch1 is to encourage students to learn more than usual. Learning more than usual refers to students' level of curiosity and active participation in research-based learning (RbL) activities. Research-based learning (RbL) allows students to select research topics that interest them, allowing them to expand their knowledge independently. Learning more than usual indicates a high motivation to learn because students have the freedom to choose topics that interest

them. This means that selecting their research topic demonstrates the affiliation. McClelland's motivation theory states that affiliation is the source of motivation, resulting in a desire to take action(Jana Aksah et al., 2023)

The second aspect of nAch1 is to pique students' interest in the research. Curiosity is the psychological desire to explore, comprehend, and learn more about a topic or concept. In this context, RbL activities can pique students' interest by presenting real-world problems, such as environmental mitigation. Curiosity motivates students to learn new things about environmental mitigation issues. RbL piques interest in environmental mitigation issues by presenting new or common findings. Intellectual challenges, discovery, and cognitive stimulation all contribute to students' curiosity. According to Deci and Ryan, well-met curiosity can satisfy students' basic psychological needs, resulting in increased motivation (Kadir et al., 2020).

The third aspect of nAch1 is to encourage students to conduct literature searches on the research under consideration. A literature search is a search for relevant sources of information on the topic or idea that students are researching. Students directly conduct the process of looking for accurate literature sources and research methods to use. Students' insights improve as a result of this process because they are aware of previous research and research gaps that can be filled using several previous studies. This is consistent with Cronmiller's research findings, which state that the literature search process helps researchers gain new insights (Cronmiller et al., 2022).

The graph in nAch 1 demonstrates that research-based learning (RbL) makes a significant contribution, particularly in terms of literature searching. However, challenging learning strategies can help students learn more and become more curious. A purposeful RbL approach can connect all aspects of nAch1, resulting in meaningful learning and increasing students' achievement motivation. As a result, it is reasonable to conclude that RbL encourages students to want to learn more than usual (nAch1).

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RbL Encourages to Solve Problems in Research (nAch2)

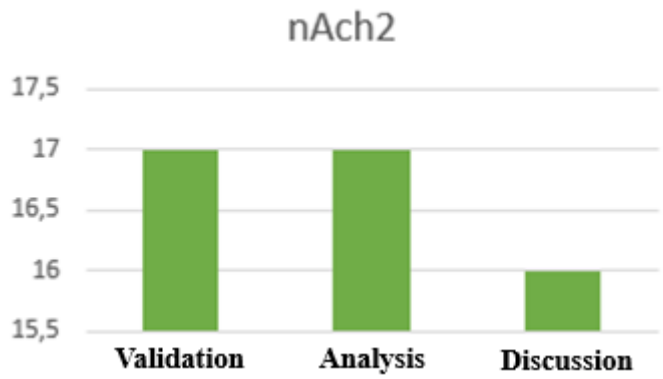

Figure 3.
The Graph of the Desire to Solve Problems in Research (nAch2)

Figure 1.3 shows the desire to solve problems in research (nAch2). Validation, analysis, collaboration, and discussion were among the topics covered. Seventeen students have expressed a desire to validate the research under consideration. Seventeen students have expressed a desire to analyze the research under consideration. Sixteen students have expressed a desire to collaborate and discuss with their teammates and supervisor.

The first aspect of nAch2 through RbL is to encourage students to validate the research they are studying. The validation aspect demonstrates how students are encouraged to check and ensure the validity of the data they collect. This means that students bear direct responsibility for the accuracy of the research findings. Sugiyono believes that data accuracy is an important aspect of research, so validation is required (Sugiyono, 2022). Susiani emphasizes the importance of distinguishing between valid and reliable sources (Susiani et al., 2018). Validation, or testing the correctness of data, is required so that the information derived from the research can be useful to the larger community. As Muslim scientists, students strive to conduct all research activities with truth and benefit, which entails following Allah's instructions in the Qur'an. This is consistent with the views of Quraish Shihab, who interprets Surah al-Alaq 1-5 as a research process over the values (Adib, 2022).

The second aspect of nAch2 in RbL is to encourage students to analyze the research under consideration. The analysis section demonstrates that students are

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encouraged to replicate or reproduce experiments or research conducted by previous researchers. Students are encouraged to identify and comprehend the main ideas from previous research. The analysis process requires students to build their knowledge from the information they have obtained and attempt to find answers to the questions they have posed. Jaean Peaget's cognitive constructivism theory emphasizes the importance of knowledge being built in the minds of individuals, who should not only receive information directly from the teacher but also be encouraged to find and understand the main ideas independently (Nyamekye et al., 2023). Furthermore, in her research, Susiani stated that analysis allows them to see the contribution of previous research, different perspectives, and important findings relevant to their own research (Susiani et al., 2018).

The third aspect of nAch2 in RbL is to encourage students to collaborate and discuss the research they are conducting with their team and mentor. Discussion and collaboration are important components of research-based learning activities. Students can share ideas, receive feedback, and gain a better understanding of the research they are studying by collaborating and discussing with their team and mentor (Häkkinen et al., 2017; Timiyo & Sriram, 2021). Problems that arise during research can be solved collaboratively to find solutions. According to Winkler, collaboration necessitates an environment that promotes quality collaboration (Sarifudin et al., 2023). Yuli Rahmawati's research found that respectful communication practices and collaborative decision-making are effective strategies for resolving dilemmas (Rahmawati et al., 2021).

The graph in nAch2 demonstrates that research-based learning (RbL) makes a significant contribution, particularly in terms of data validation and analysis. However, it is critical to refocus collaboration strategies in RbL to improve student motivation to discuss and collaborate. As a result, it is reasonable to assume that RbL encourages students to want to solve problems related to the research they learn (nAch2).

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RbL Encourages to Take Personal Responsibility in Research (nAch3)

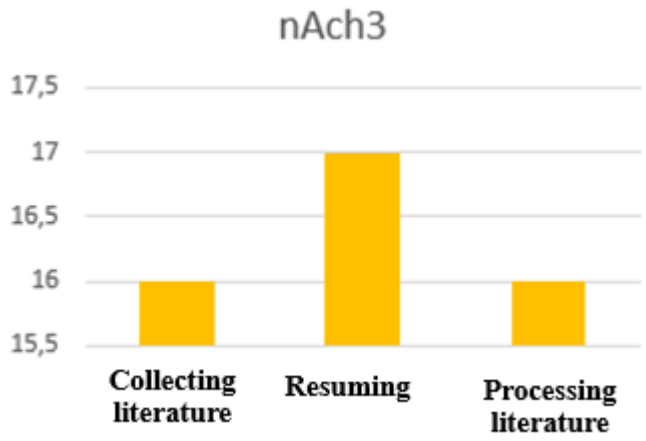

Figure 4.
The Graph to Take Personal Responsibility in Research (nAch3)

Figure 1.4 depicts the desire to be personally responsible for research (nAch4). The stages of collecting, summarizing, and processing literature are visible. Sixteen students want to collect relevant literature about the research they are studying. Seventeen students have expressed a desire to summarize relevant literature about the research under consideration. Sixteen students have expressed a desire to review relevant literature about the research under consideration.

The first aspect of nAch3 in RbL is to encourage students to collect relevant literature about the research under consideration. Gathering literature is an important first step in research-based learning activities because it sparks students' curiosity. Students are encouraged to seek out a variety of literature sources that are truly relevant and of high quality, so good information search skills are required. Effective database use in libraries, e-libraries, and other electronic information sources must be taught during the learning process. This means that students learn research skills such as understanding keywords, using search operators, and evaluating the reliability of information sources. According to Behrmann, students must be familiar with research concepts and issues in order for the literature they collect to be relevant (Behrmann, 2019).

The second aspect of nAch3 in RbL is to encourage students to revisit the literature on the research under consideration. Resuming literature is the process of noting and processing important findings from the collected literature. Processing

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literature is a critical step in RbL activities for fully comprehending the content of the literature read. Processing literature requires analytical skills to dissect and identify key points. This means that students are encouraged to identify the major ideas, arguments, findings, and methodological approaches used in the study. Ratna stated in her research that the skills of analysis, synthesis, information organization, and interpretation help students better understand the content of the literature they are researching (Ratnawati & Idris, 2020).

Graph nAch 3 demonstrates that research-based learning (RbL) contributes significantly, particularly in resuming literature or understanding the core of the material. However, the aspect of collecting and processing literature requires additional reinforcement through systematic and collaborative analysis exercises. As a result, it is reasonable to assume that RbL encourages students to take personal responsibility for their research (nAch3).

RbL Encourages to Perform Well in Research (nAch4)

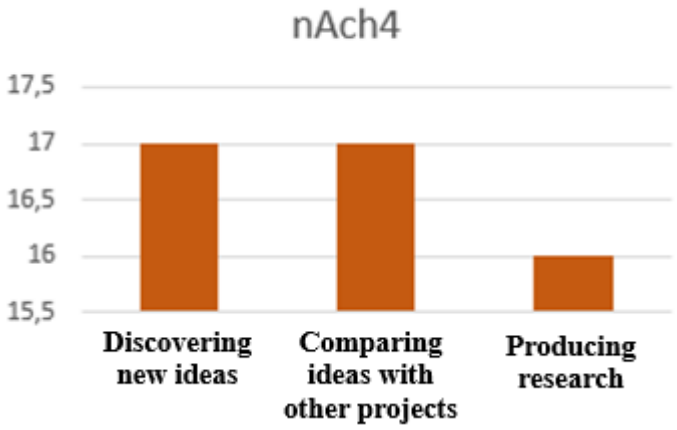

Figure 5.
The Graph of the Desire to Perform Well in Research (nAch4)

Figure 5 depicts the desire to succeed in research (nAch4). The aspects of discovering new ideas, comparing ideas, and conducting research are visible. Seventeen students share the desire to discover new ideas about the research under consideration. Seventeen students have expressed a desire to compare new ideas

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about the research under consideration to previous research. Sixteen students expressed a desire to conduct the research under consideration.

The first aspect of nAch4 in RbL is to encourage students to learn new things about the research they are studying. In this aspect, students look for information in the literature to supplement their research. Students are encouraged to think creatively and generate innovative ideas. This means that students are encouraged to think outside the box (imagination) and create novel ideas. Exploration by students refers to their ability to think creatively. Tan believes that creativity stems from a person's ability to maximize their thinking potential (Supriatna & Maulidah, 2020). In fact, exploration can spark new ideas, broaden knowledge of the research, and assist in the development of more mature ideas (Gazali & Yusmaita, 2018; Tawfik, Kim, et al., 2020).

The second aspect of nAch4 in RbL is to encourage students to compare new ideas about the research under study to previous research. This aspect encourages students to perform critical evaluation by comparing their ideas to previous research ideas. This aspect encourages students to review their ideas in discussions and receive feedback or corrections from peers or mentors via presentations. The evaluation process assesses the strengths and weaknesses of the student's ideas. The evaluation process can help them further their research. Even discussions can help students gain a deeper understanding of relevant issues and develop more mature ideas (Gazali & Yusmaita, 2018).

The third aspect of nAch4 in RbL is to motivate students to produce the research they have learned. In this case, producing research entails reporting the findings of the research, specifically in the form of a written report that adheres to the standards for preparing scientific research reports. This process relies on students' ability to organize the stages of their research. Students must also be able to process research language in a written report in a structured manner that adheres to the madrasah's writing system. In addition, students are encouraged to follow research ethics, such as integrity and honesty, and develop the author's ideas that are mentioned in the research. According to Efron, it is critical to use ethics when citing literature and acknowledging the source of referred literature, particularly

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when writing scientific research reports (Handoko et al., 2017; Putra et al., 2023). RbL not only develops research concepts but also encourages students to carry out their research in real life, specifically during the production stage. According to Bloom's Taxonomy, the highest stage is producing or making (Muhayimana et al., 2022).

The nAch4 graph shows that research-based learning (RbL) makes a significant contribution, particularly in terms of finding new ideas and comparing research ideas to previous research. However, conducting research requires more technical and emotional support so that students not only have brilliant ideas but can also write them with good writing systems. As a result, it is reasonable to conclude that RbL encourages students to want to perform well in research.

The overall graph of nAch1-4 depicts students' motivation for achievement. As a result, RbL helps students at MAN Insan Cendekia Pekalongan develop a desire to achieve success. This drive to succeed is what led to the MAN Insan Cendekia Pekalongan student team winning silver medals in the 2022 national scientific work competition.

According to in-depth interviews with the research team about their perspectives, research-based learning (RbL) offers significant benefits. Previously, RbL was viewed as an impediment because it interfered with the busy schedule of other activities and increased the complexity of the process. The student's contributions include sharpening their critical thinking skills, and problem-solving and encouraging them to be creative in finding solutions to real-world issues in the madrasah environment. Another contribution is the practical benefits, such as the ability to use laboratory equipment and read scientific literature online, which were previously only available at the madrasah library. RbL also taught them the importance of properly citing others' work. In fact, RbL has led them to national achievements and, hopefully, will serve as their golden ticket to the desired university.

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CONCLUSION

Research-based learning (RbL) significantly impacts student achievement motivation (nAch1-4) at MAN Insan Cendekia Pekalongan. RbL from nAch1-4 makes a significant contribution by encouraging students to conduct literature searches, validate and analyze data, resume literature, find new ideas, and compare them to previous research from the research under study.

However, research-based learning (RbL) requires further improvement, particularly in encouraging some achievements on nAch 1-4. The areas that require improvement include learning more than usual, curiosity, collaboration and discussion, literature collection and processing, and research production. The emphasis on the number of research samples, specifically 17 students preparing for national scientific work competition events, is a limitation of this study. Future research can make use of a larger sample size and multiple populations. Overall, RbL helps students think critically, creatively, and independently, all of which are characteristics expected in an independent curriculum.

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