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Fostering Research Motivation for Students Through Learning Development with A Research-Based Flipped Classroom Model

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Abstract: This research aims to foster research from an early age by developing the Research Based Flipped Classroom (RBFC) Learning model at Islamic High School. The method used was Research and Development (RnD) to produce specific products and test the effectiveness of these products by adapting the McKenny Model as a stage consisting of preliminary research, prototyping phase, and assessment stage. Through preliminary studies in the form of content analysis and literature studies, the activities carried out are to analyze the objectives within the limitations of the material developed, design learning, and test the validity, effectiveness and practicality of the designed model. The results of this study 1). The development of the Research-Based Flipped Classroom (RBFC) learning model has been proven to significantly improve student learning outcomes at MA Sjech Ibrahim-Koto Tuo- Pasaman; 2). This Research-Based Flipped Classroom (RBFC) learning model can be declared valid after being validated by the validator; and 3). There is a practical level of practical application of the Research-Based Flipped Classroom (RBFC) Learning model, with evidence of its development and increasing student creativity in learning. Thus, applying the Research-Based Flipped Classroom (RBFC) learning model can develop research literacy early and be an alternative in selecting learning models used in Madrasah Aliyah.

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Introduction

Scientific research is a series of connected and accumulated observations that eventually give birth to theories that can explain and predict the phenomena that occur (Cargill & O'Connor, 2021). Research can reveal natural phenomena and secrets that must be studied and researched in the future (Strydom, 2013). Societal problems can be solved through research activities, and new findings can be made (Powell, 2020). Educational institutions are expected to be able to develop research as part of the academic institutions (Ajuwon, 2020). Students should immediately develop the skill of conducting research from an early age because this skill is related to the learning process for students, especially in the reading and writing field(Winn, 1995). Without writing, the study's results will not reach the community (Yusuf et al., 2017). Students who like to conduct research will gain new knowledge and insights, increasing their intelligence to answer all life challenges and having a rich imagination (Aripin, 2022). For the learning process to run optimally, carefully

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designed learning models must be supported by the results of selecting knowledge or skills that have been mastered to achieve learning goals (Muliati & Rezi, 2018). Selecting or determining a learning model for each subject or subject matter is necessary because each subject has a unique learning experience that students will later achieve through the learning process (Fuadi et al., 2024).

One educational unit that is the focus of the movement to grow and develop research is Madrasah Young Research. This movement can be seen in a research competition held in Madrasah through *MyRest* (Madrasah Young Research), both at the Madrasah Aliyah and Madrasah Aliyah levels (Afrahamiryano et al., 2023). Research activities in Madrasah Aliyah are the initial foundation for motivating Madrasah students to pursue research early on (Munawaroh et al., 2022).

Based on observations made in several Madrasah Aliyah in West Sumatra, several Madrasah Aliyah both MAN and MAS have tried to implement research movements through research exercises given to students. Still, the implementation could be improved and more intended for students who will take part in the Madrasah Young Research (*MyRest*) competition as an annual competition for Madrasah students. Research training is limited and has yet to be enjoyed by all students, but it is intended for students who will participate in contests in the field (Saimroh & Basid, 2021). The learning model's application to support research activities is also suspected to be still not optimal. Some of the problems found include:

1) The learning carried out prioritizes mastery of the material and does not consider aspects of student saturation. The provisional suspicion that unpleasant learning arises because teachers do not apply a learning model based on students' needs and desires and not on the social changes that occur in the students' environment.
2) Teachers tend to make learning at school passive and rigid, which can cause students to feel bored.
3) The government tried to coach learning with various trainings so that learning prioritizes the process through innovation and curriculum development. However, in learning in schools, it has yet to be appropriately implemented because teachers still emphasize students' learning outcomes through mastery of material as a benchmark for learning success.
4) Students are given information about the surrounding environment, technology, science, and community social life. It is a source of learning but needs to be fostered in the direction of love to observe and explore the existing environment, especially those in the student's environment. Still, students need to be given an example of what to do when considering the importance of the environment as a source of learning. Students are taught to know the environment as an essential basic social skill, but students need to be taught how they can carry out learning and enjoy these activities.
5) Learning in schools tends to be based on the teacher's wishes. Students must comply with the teacher's implementation regardless of whether they are happy to discover this way. This makes students feel uncomfortable, not like lessons, and not glad to know, which impacts the learning process and students' abilities.
6) Technically, teachers tend only to pursue curriculum achievement targets. When taking exams, students are required only to memorize the lesson because their general view is that the success of learning is mastering as much material as possible.

Some of the problems raised earlier boil down to students' low motivation in conducting research activities. The underprivileged also answered questions related to reading. Sometimes, it is also suspected that students are less able to find the primary thoughts of

reading. Thus, it can be understood that the research activities still need to be more effective and achieve maximum results.

The problems raised above need to be overcome by developing a learning model, a Research-Based Flipped Classroom (RBFC) model, to improve the quality of learning, especially research, and encouraging students to master the competencies and skills of the 21st century needed for innovation through research (Zainuddin & Halili, 2016). This model has been adapted to the Indonesian context. This model has learning steps that can encourage students to learn actively and productively (Yildirim & Kiray, 2016). Research-Based Flipped Classroom (RBFC) Learning as a learning model has several syntax or learning steps; of course, it cannot be separated from several advantages, and at the same time, there are some disadvantages. However, its benefits are far more dominant than its weaknesses and disadvantages as a learning model. One of the advantages of the RBFC model is that it can encourage students to be skilled in life by conducting various research for innovation (Sumarni et al., 2022). The indication of the RBFC model as one to face the 21st century with skills is that the competencies that must be possessed are several competencies, namely conceptual understanding, critical thinking, collaboration and communication, and creative thinking (Subkhan & Widhanarto, 2017).

Regarding the above, this research aims to produce an RBFC-based Learning Development Module with its syntax so that it can be an alternative model teachers use to motivate students to conduct research. This is especially true at the level of Madrasah Aliyah, where similar development research has yet to be found, both in terms of development content and the subject and object of the study.

Research Method

This research is development research. According to Sugiyono (2012), development research, or *Research and Development* (RnD), is used to produce specific products and test their effectiveness. This study's development model was adapted from the McKenny Model. This model consists of three main stages: (1) *preliminary research*, (2) *prototyping phase*, and (3) *assessment stage* (Plomp & Nieveen, 2007).

The selected model was adapted to the characteristics faced in the field. This model was chosen because it has several advantages, including (1) it is more appropriate to be used for the development of learning tools, (2) the description is complete and systematic, and (3) before being tested, the teaching materials to be developed are revised by themselves and consulted first with experts/experts (4) there is an evaluation of each person and small groups. This study's subjects were students of Madrasah Aliyah (MA) Sjech Ibrahim Pasaman Regency, West Sumatra. The data collection instrument involved limited trials and broader trials using validity tests conducted by experts. The practicality test involved observing learning and conducting in-depth interviews with teachers. The effectiveness test was performed using the experimental method, namely, testing the experimental and control classes, coupled with in-depth interviews with students.

Results and Discussion

Data Analysis and Development Results

a) Preliminary Analysis Stage

The preliminary study was carried out in the form of a literature study. This step was carried out before designing by reading and analyzing literature on the learning model. Models in learning as a medium that bridges between learning and children's enjoyment in learning (Hasriadi, 2022). The model is excellent for inspiring students to take a learning

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action (Pohan et al., 2020). Models can help the development of students' cultural appreciation and emotional intelligence, expand students' knowledge, or cause pleasure (Khoerunnisa & Aqwal, 2020). Models are also a guideline in learning (Bouza et al., 2023).

In addition to the model, the learning outcomes are also considered. Learning outcomes are something that students get after carrying out learning activities, either in the form of achievements or changes in the behavior and attitudes of students who have experienced learning (Harefa et al., 2023). The learning outcomes referred to in this study are student learning outcomes in the cognitive realm obtained after students carry out learning outcome tests in learning using the Research-Based Flipped Classroom (RBFC) Model. At this stage, the researchers conducted a needs analysis, which includes the curriculum, concepts, students, teaching materials used, and analysis of learning literature at the high school or Madrasah Aliyah level. In addition, a literature analysis of the Research-Based Flipped Classroom (RBFC) learning model was also carried out. Meanwhile, the analysis of students was carried out by looking at the suitability of the learning model developed with the level of student development. The results of the study can be described.

b) Field Survey

Field surveys were conducted through observation and interviews with teachers and students in Madrasah Aliyah (MA). The subjects were MA Sjech Ibrahim Koto Tuo, Pasaman Regency, West Sumatra. Based on the results of the interviews, it was found that students prefer to learn using various methods or models taught by Teachers. Applying a religious learning model usually attracts students to learning and tends to make them enjoy learning activities. It was also found that students were more interested in learning using a particular learning model. They reasoned that the various activities made the learning atmosphere more pleasant. Furthermore, applying an exciting model directly involved students. The subject matter was easily and quickly understood when particular learning models are used.

c) Instrument Validation

The draft of the Research-*Based Flipped Classroom* (RBFC) learning model instrument was first discussed with several experts and practitioners. After revisions, the draft instrument was sent back to the assessment team of experts and practitioners. In the first submission, the draft of *the Research-Based Flipped Classroom* (RBFC) learning instrument in Sociology Learning was returned and equipped with an assessment of language instruments.

d) Learning Models and Tools

Designing learning tools was done by understanding some supporting literature. To assess the learning design, the design of the learning tool was directly given to experts by directly discussing the design of the learning tool using the *Research-Based Flipped Classroom* (RBFC) Model before being experimented with. Then, learning tools and sociology subject matter with the *Research-Based Flipped Classroom* (RBFC) model were discussed with teachers who teach sociology subjects before being experimented. The assessment of the validity and suitability of this model device consists of several aspects: 1) Rational device; 2) the results of the assessment of the material presented; 3) assessment of conformity between aspects; 4) assessment of the language used; and 5) physical form.

e) Validity

After experts measured the validity and suitability of the learning tools, several shortcomings were corrected. Teachers in trial and experimental classes received FGD and training on using learning tools using the research-based flipped classroom (RBFC) model.

The design of the learning tools to be experimented with was revised every time shortcomings were found.

The assessor stated that the learning tool using the *Research-Based Flipped Classroom* (RBFC) learning model can provide opportunities for students to convey their ideas in learning. So, the opportunity for the interaction of students and teachers in learning with learning using *the Research-Based Flipped Classroom* (RBFC) Model in Sociology Learning in the category is huge. Thus, it can be said that the Sociology Learning tool using the *Research-Based Flipped Classroom* (RBFC) Model can be used for students at the Madrasah Aliyah level. Many students were willing to participate in, respond to, and interact with learning. The sequence of activities was obvious, and the steps for presenting learning were also arranged systematically. The orientation of the activity is aimed at helping students develop their interest in learning. Learning using learning tools using the *Research-Based Flipped Classroom* (RBFC) Model found many things teachers can do and are flexible. The RBFC model provided opportunities for students and teachers to interact and discuss more freely and intensively.

f) Practicality

This study is about the practicality of developing Sociology Learning based on the *Research-Based Flipped Classroom* (RBFC) Model designed. This practicality was assessed by teachers who applied Sociology Learning based on the *Research-Based Flipped Classroom* (RBFC) Model. The *Research Flipped Classroom (RBFC) model* was declared practical with a score of 80 in the helpful category. The data showed that the Learning Model *Research Flipped Classroom (RBFC*) in Sociology based on the *Model Research Based Flipped Classroom (RBFC*) is practically implemented.

g) Effectiveness

Experimenting with learning is conducted to determine whether the Sociology Learning tool is effective using the *Research-Based Flipped Classroom* (RBFC) learning model.

Application of Learning with Research-Based Flipped Classroom

Based on the results of the learning analysis, student characteristics, and curriculum design, the implementation of the RBFC learning model is divided into eight stages, namely: 1) orientation & presentation, 2) practice, 3) review concept, 4) test concept, 5) real experience, 6) reflection and observation, 7) abstract conceptualization; and 8) testing the concept. The stages of implementing RBFC are divided into three parts: learning activities. According to Chen et al. (2023), these are learning activities before entering class (*pre-class activities*), activities in class (*in-class activities*), and learning activities after class (*post-class activities*).

Pre-class activities are learning activities students carry out before the classroom learning process. This stage applies a modification of the direct learning model with learning videos. These learning stages include orientation, presentation, and practice. The purpose of the learning process at this stage is to prepare students to master the concepts of the learning materials taught. Judging from the concept of Taxonomy Bloom & Krathwohl in 2001, Wilson (2016) stated that the learning activities in *these pre-class activities* have learning objectives and indicators at level 1 (C1) and level 2 (C2). Namely, remembering is retrieving *relevant knowledge from long-term memory* and understanding, namely, *constructing meaning from instructional messages, including oral, written, and graphic communication*. Judging from the spiral curriculum, as explained by Biesta (2019), this stage is the initial stage of instilling concepts that will be the basis for new knowledge or skills from the next stage of learning.

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The orientation stage aims to inform students about learning outcomes, targeted mastery levels, scope of study materials/materials, learning procedures, and their responsibilities in the learning process. The learning material contained summary information and essential points in PowerPoint slides recorded using the o-matic screen. Learning materials in the form of procedural knowledge or declarative knowledge needed to be presented by demonstrating steps and providing examples. These tasks were given at the end of the learning video. The assignments were made through questions and structured and guided exercises; these exercises are used to test students' mastery of the concepts presented in the learning videos.

The next stage is learning activities in the classroom. This stage is a continuation of learning activities carried out outside the school. This stage applied the concept acquisition learning model and the experiential learning model. Based on the cognitive level in the revised version of the Bloom Taxonomy in 2001, activities at this stage were at level 3, which was *applying*, level 4, which was *analyzing*, and level 5, which was *evaluating* (Forehand, 2010). Judging from the spiral curriculum, this stage was in the second cycle or level, namely the formation of new knowledge and skills based on concepts mastered in the cycle / primary level.

The review stage is a transition from the previous stage. Before students were asked to apply concepts that have been mastered previously, the teacher reviewed the student's mastery of the basic concepts and skills that had been learned without being directly accompanied by the teacher. Based on the revised Bloom Taxonomy, the learning objectives and indicators were at level 2 (concluding). An example of learning outcomes at this stage is that students can summarize the concepts learned by the essential characteristics of the examples presented.

The stage of reviewing concepts aims to ensure that students are ready to apply the ideas they have mastered to the situations or cases the teacher gives. The learning objectives were arranged at level 3 (applying) to carry out or use a procedure in a given situation. For example, students can formulate research problems appropriately according to the steps in formulating research problems on the example cases provided by the teacher. Students were asked in groups to apply/implement the concepts they master according to the situation given by the teacher.

The experience stage explores students' experiences about the concepts they learn through experience. Real experience means a person's impressions, views, and opinions after listening to, listening to, and recording the questions and comments of seminar participants and examiners in research activities. Students were invited to brainstorm at this stage to discover the knowledge formed directly in the field. In addition, this stage is also used to prepare students to continue the learning process at a higher cognitive level and learning cycle.

Based on data obtained in the field from 20 students in the experimental class and 20 students in the control class, data related to learning motivation, the average learning outcomes of pretest, posttest, gain, and n-gain were obtained. Pretest learning motivation is the student's learning outcome before the treatment is implemented. It consists of the motivation to learn the pretest of the experimental class and the motivation to learn the pretest of the control class. Meanwhile, posttest learning motivation is the student's learning motivation after the treatment is implemented, consisting of posttest learning motivation for the control and experimental classes. The difference between pretest and posttest learning motivation in the form of an increase (positive value) or decrease (negative value) is called gain. The percentage of increase or decrease in student learning motivation is called n-gain.

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Table. 1 The average score of pretest, posttest, gain, and n-gain students' research motivation to study

Class	Experimental Classes	Control Classes
Pretest	84,60	83,00
Posttest	109,30	100,25
Gain	24,70	17,25
N-Gain	29,22	20,85

Based on the table above, the data shows that the average learning motivation of students in the experimental class before learning *(pretest)* is 84.60. Then, after learning *(treatment), the* average student learning motivation score *(posttest)* rose to 109.30. This showed an average gain of 24.70 or an *n-gain* of 29.22%. In the control class, the average learning motivation of students before learning *(pretest)* was 83.00, then after learning *(treatment), the* average learning motivation of students *(posttest)* became 100.25. This also shows an increase in student learning motivation *(gain)* in the control class by an average of 17.25 or *(n-gain)* of 20.85%. The average learning motivation of students before and after learning in the control class and the experimental class can be seen in the form of the following graph:

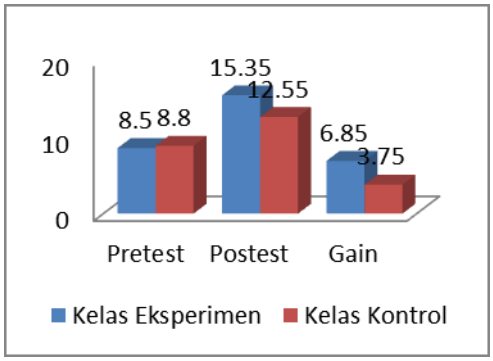

Figure. 1 Average Graph of Pretest, Posttest, and N_gain Student Research Learning Motivation

This stage aims to provide opportunities for students to reflect on or observe their experiences to gain new knowledge and concepts. The learning indicators at this stage are the cognitive level at level 4, breaking material into its constituent parts and determining how the parts relate to one another and overall structure or purpose, and level 5, evaluating and making judgments based on criteria and standards. From the aspect of the spiral curriculum, this stage is the second cycle, where students apply concepts that have been mastered previously to form new knowledge and skills with higher complexity. Furthermore, the stage of Actualization Abstraction aims to provide opportunities for students to formulate abstract concepts based on their observations in the previous stage. Teachers use this stage to ensure that mastery takes the form of new knowledge and skills at their level and, second, in preparation for applying it to a broader context.

Learning activities at the experience stage are to test concepts in an objective and broader context. Students were individually asked to apply the ideas mastered in the previous stages by the components of their research proposal plan. Learning achievement indicators were formulated at level 6: Put elements together to form a coherent or functional whole and reorganize elements into a new pattern or structure. An example of learning outcomes is that students can design and compile the background of problem formulation and research questions using their plans and proposal designs. In the spiral aspect of the curriculum, this stage is at level 3, namely mastery.

Implementing these activity stages primarily involves studying the various aspects needed to achieve an effective learning process. This process can be achieved by developing an effective learning model, such as a Syntax and Lesson Plan (RPP).

The reality found is that the indicators formulated have yet to depict the achievement of the stages of the learning process based on *the RBFC Learning* model. Then, the learning objectives formulated do not contain ABCD (*audience, behavior, condition, and Degree*) as the main requirement for good learning objectives. Furthermore, the learning materials included do not include aspects of *the RBFC Learning model*. In addition, the stages of learning activities that had been made were too simple, so they need to be adequately organized according to the stages of the learning process.

Therefore, the Lesson Plan needs to be revised, developed, and completed according to the learning process's needs based on *the RBFC Learning* Model. In addition, the indicators formulated need to be adjusted to the learning stage based on *the RBFC Learning* model. Besides the lesson plan, the teaching materials must be analyzed to make it easier for students to understand the reading content comprehensively. In addition, teaching materials need to consider aspects of *the RBFC Learning* model for students. In general, the analyzed teaching materials have yet to adopt the entire understanding of students—the RBFC learning model positions students as subjects and centers in learning. In practice, it allows students to be actively involved in learning and can encourage them to develop all their potential.

Based on the results of observations on the application of research-based sociology learning, it was found that (1) students' courage and communication skills, especially when speaking in front of the class, can be categorized as low. This can be seen when choosing participants for the first time. No student voluntarily became a participant, even when the teacher appointed the student to participate; some of the students refused and did not dare to participate. Besides that, it can also be observed that when students play a role in front of their friends, they still look shaking and feel awkward (not confident). Students' habits greatly influence conditions like this in previous learning; (2) research-based learning models can provide *hidden practice,* where students have unconsciously carried out interaction and communication in the form of expressions about the concept of learning materials; (3) research-based learning model involves students actively carrying out activities in the form of experiences by their role in collaborative activities; (4) research-based learning model, can give students pleasure because students can learn to seek a legal decision from existing social facts because children basically like facts and the social environment around them; and (5) in the implementation of the next research-based learning model, students' confidence seemed to be better than in the previous learning.

With the implementation of the RBFC learning model, communication between participants is more free, and the learning atmosphere seems more lively. In a research-based learning model involving students, it can affect students' courage and confidence. In addition, it can also keep students interacting, expressing opinions, asking questions, and answering. It was found that research-based learning increased activity and creativity in the learning process. Students also become more courageous in uncovering existing social facts, expressing opinions, respecting the views of friends, learning ethics together, leading discussions, cooperating, having responsibility, seeking and processing information, analyzing and making conclusions, and having a critical, democratic and creative attitude in responding to problems faced during learning. For this reason, the research-based learning model can encourage students to hone their learning skills independently (individually and in groups) and can help students to appreciate knowledge both in small discussions (groups) and

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open delivery (public debates). In addition, the research-based learning model can also increase students' appreciation and expressive experience.

The effectiveness of developing a research-based learning model was measured in the experimental and control classes. Based on the results of the analysis, it was determined that the existing teaching materials given to students needed to contain elements *of the RBFC Learning* model. The examples do not lead to aspects of the *RBFC* learning model. Thus, the learning used in the learning process has not been developed effectively and needs to be revised for further development.

Curriculum analysis focuses on Core Competencies (KI) and Basic Competencies (KD). The KI and KD analysis results then identify various concepts related to the material to be developed. Then, multiple tasks that students must complete to achieve the specified KI and KD are also analyzed. It is necessary to develop student learning experiences that effectively support learning activities. One way to do this is to involve students in comprehensively understanding the content or teaching materials based on the *RBFC Learning* model.

Validity, Practicality, and Effectiveness of Development

a) Validity

Regarding the validity test, the *RBFC learning model,* designed and validated by experts and education practitioners in their fields of study, consists of three expert validators and two practitioner validators. The learning tool was revised twice based on the discussion results and the validator's suggestions. The revision was primarily related to the content and redaction of the language of the developed learning tool. The revision results are used to improve the learning tools by incorporating all suggestions and considerations given by the validators. Several things must be improved and considered to create a valid model based on the revision results. After being revised, the Lesson Plan was obtained, which was considered good enough to be used as a guide for implementing the learning process by developing *an integrated RBFC Learning* model. The steps prepared can guide teachers in facilitating students' various learning activities.

b) Practicality

Learning materials declared valid are then tested to determine their practicality. This study implemented the trial at MA Sjech Ibrahim Al Khalidy Koto Tuo, Pasaman Regency. The practicality test was carried out to see the level of practicality of the RBFC learning model developed. The practicality test of the developed syllabus was carried out through interviews with teachers who conducted device trials. Then, it is carried out by observing the implementation of learning through the implementation observation sheet that has been provided. Meanwhile, the practicality test of teaching materials was carried out by filling out a questionnaire on teacher and student responses, which was strengthened by direct interviews after learning was completed.

The test of learning implementation is based on *the character-integrated RBFC Learning* model at MA Sjech Ibrahim Al Khalidy Koto Tuo Pasaman Regency, which is known through observation. Observation was carried out using an instrument to observe learning implementation. Based on the observations, an average score with a practical category was obtained for RBFC model-based learning. The results of responses from teachers who have used the *RBFC Learning* model are in the form of the developed RBFC learning model. Teachers generally consider *the RBFC* learning model that researchers have developed very helpful in learning. This learning development is regarded as an innovation in the learning process and the world of education in general.

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The practicality test found the results of the analysis of responses from MA students of Sjech Ibrahim Al Khalidy Koto Tuo, Pasaman Regency, who followed the learning process using *the RBFC* Learning model. Based on the analysis, it can be concluded that students generally feel motivated, which helps them understand learning and grow their literacy motivation and character. In addition, students also think they have gained new experiences with the teaching that is applied because it differs from previous knowledge.

c) Effectiveness

The effectiveness test was conducted using interviews. This study used unstructured interviews, meaning the questions were developed according to the respondents' (teachers') answers—the main interview questions related to developing the *RBFC Learning* model. Apart from the observations through observation sheets, effectiveness can be obtained from the interviews with teachers who conducted tests of the developed device. The same is true for unstructured interviews. This means the question develops according to the respondent's (teacher) answer after being given a question.

Students were also interviewed about using learning model development to obtain information about their familiarity and interest in developing *RBFC* learning nodes. Generally, students are satisfied and happy with applying the *RBFC* Learning model's development in learning. Students feel delighted with the teaching carried out by teachers using *the RBFC* learning model. Based on the results of observations and interviews in the application of Research-based Sociology Learning, it was found that the research-based learning model can provide a *hidden practice,* where students have unconsciously carried out interaction and communication in the form of expressions about the concept of learning material. In addition, students are also actively involved in activities in the form of experiences by their role in working together. The data also shows that students enjoy learning by seeking a legal decision from existing social facts because children like facts and the social environment around them. In addition, students' confidence is formed more closely than before the learning was carried out.

Data also showed that the application of research-based learning could increase activity and creativity in the learning process; students dared to reveal existing social facts, express opinions, respect the opinions of friends, ethics of learning together, lead discussions, cooperate, take responsibility, search and process information, analyze and make conclusions, as well as the growth of critical, democratic and creative attitudes in responding to problems that are faced during learning. Research-based learning also encourages students to hone their learning skills independently (individually and in groups). It can help students appreciate knowledge in small discussions (groups) and open delivery (public debate).

Conclusion

Based on the research findings and discussions, it can be concluded that learning with a research-based learning model has been proven to be significantly effective in developing research learning motivation results, especially for students of Madrasah Aliyah (MA) Sjech. Ibrahim Koto Tuo, Pasaman Regency. Indirectly, implementing RBFC affects the change in student attitudes and increases students' interest in learning. These changes include students' desire to know about research, love, and enjoyment of learning that examines and reveals existing social facts, concern for the tasks given by teachers, and fostering their sense of responsibility for work and exercises in learning. Participating in the assigned sociology course increased their disciplined attitude toward following the learning process. Few students do not carry out activities and learn Sociology using the research-based learning model.

In addition, there was a difference in student learning motivation between student groups whose learning process involves developing research-based learning models and those who use conventional learning. This was found from the results of a comparative test between the experimental and control classes, where the learning outcomes of students who learned with research-based learning were better in their research motivation than those of students who learned with conventional learning.

Recommendation

Teachers who teach Sociology subjects should be able to apply research-based Sociology learning to increase students' creativity and improve their learning outcomes. Moreover, the implementation of research-based Sociology learning at Madrasah Aliyah, which is applicable, functional, and accurate, must be improved. Therefore, teachers must improve their knowledge and skills in implementing learning strategies. In addition, teachers should be able to apply the character-integrated *RBFC* learning model to foster literacy motivation from an early age and student creativity in learning.

For school principals, it is hoped that it can facilitate the needs of teachers in designing learning implementations, especially with the RBFC model. Other researchers hope to develop learning models in a broader range of schools with different situations and conditions to achieve more perfect results. The learning that has been created can be used as a reference in developing other learning models, especially those related to active and creative learning.

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