THE ANALYSIS OF BRAINSTORMING LEARNING METHOD IMPLEMENTATION IN THE TEACHER PROFESSIONAL ETHICS SUBJECT

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Abstract:
This study aims to examine the implementation of the brainstorming method in the teacher professional ethics subject at PAI (Islamic Education) Study Program, Faculty of Tarbiyah and Teacher Training, UIN Alauddin Makassar. This research is a qualitative research with pedagogic, sociological, and phenomenological approaches. The data sources of this research consist of primary data and secondary data. The results show that: first, the implementation of the brainstorming learning method is as follows; (a) always creating strong interpersonal, especially empathy, respect and sincerity; (b) creating good relations with students; (c) sincerity in accepting and caring for students; (d) expressions of interest and enthusiasm; and (e) creating an atmosphere of togetherness; second, the results of the brainstorming method gave maximum learning results, such as: (a) intellectual skills, (b) cognitive aspects, (c) affective aspects, and (d) psychomotor aspects or skills. Therefore, the brainstorming method can be an alternative in maximizing student learning outcomes.

Abstrak:
Tujuan penelitian ini adalah untuk melihat penerapan metode *brainstorming* Mata Kuliah Etika Pengembangan Profesi Keguruan Prodi PAI Fakultas Tarbiyah dan Keguruan UIN Alauddin Makassar, Penelitian ini adalah penelitian kualitatif dengan pendekatan pedagogik, sosiologis, dan fenomenologi. Sumber data penelitian ini terdiri atas data primer dan data sekunder. Hasil penelitian menunjukkan bahwa: Pertama, Analisis Implementasi metode pembelajaran *brainstorming* pada mahasiswa Prodi PAI Fakultas Tarbiyah dan Keguruan UIN Alauddin Makassar sebagai berikut: (a) senantiasa menciptakan interpersonal yang kuat, khususnya empati, respek dan kesungguhan; (b) menciptakan hubungan yang baik dengan mahasiswa; (c) kesungguhan dalam menerima dan peduli terhadap peserta didik atau mahasiswa; (d) mengekspresikan ketertarikan dan antusisme; dan (e) menciptakan suatu atmosfer kebersamaan. Kedua, hasil metode *brainstorming* pada mahasiswa prodi PAI Fakultas Tarbiyah dan Kegurauan UIN Alauddin Makassar memberikan hasil belajar yang maksimal. Seperti (a) keterampilan intelektual, (b) aspek kognitif, (c) aspek afektif, dan (d) aspek psikomotor atau keterampilan. Oleh karena itu, metode brainstorming dapat menjadi salah satu alternatif dalam memaksimalkan hasil belajar siswa.

Keywords:
Analysis, Brainstorming Learning Method, Implementation

INTRODUCTION

Efforts to improve the quality of education cannot be separated from strengthening the subjects. Improving the quality of education, especially education in formal education institution is the first step in improving human resources. Improving the quality of the learning process is an effort to improve the quality of education, in which as a consequence, it is expected to be able to improve the learning achievements of students to a better level and prepare the next generation of the nation so that they can develop optimally.

Learning achievement refers to the functions and objectives of National Education in accordance with the Law of the Republic of Indonesia No. 20 of 2003 concerning the National Education System in chapter II article 3 regarding the basis, functions and objectives explained that: National education functions to develop abilities and shape national character and civilization, aims to develop the potential of students to become human beings who believe in and fear God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent, and become citizens of a democratic and responsible (Undang-Undang Republik Indonesia Nomor 20, 2003).

In Islam, education is also a source of glory by becoming a knowledgeable person. Therefore, Allah exalted the place according to His word.

يَٰٓأَيُّهَا ٱلَّذِينَ ءَامَنُوٓاْ إِذَا قِيلَ لَكُمْ تَفَسَّحُواْ فِى ٱلْمَجَٰلِسِ فَٱفْسَحُواْ يَفْسَحِ ٱللَّهُ لَكُمْ ۖ وَإِذَا قِيلَ ٱنشُزُواْ فَٱنشُزُواْ يَرْفَعِ ٱللَّهُ ٱلَّذِينَ ءَامَنُواْ مِنكُمْ وَٱلَّذِينَ أُوتُواْ ٱلْعِلْمَ دَرَجَٰتٍ ۚ وَٱللَّهُ بِمَا تَعْمَلُونَ خَبِيرٌ ۝

Translation:
"O you who believe, if you are told to you: "Be spacious in majlis", then make room for it, Allah will make room for you. and if it is said: "Stand up", then stand up, surely Allah will exalt those who believe among you and those who are given knowledge by degrees, and Allah is Aware of what you do." (Q.S Al-Muj is 58: 11).

From the verse above, it can be concluded that education is necessary for human lives. Allah swt has promised a high degree for knowledgeable people. However, learning outcomes as the output of the educational process do not show the expected results, only about 40% of students met the Minimum Completeness Criteria (KKM) standards. It is known that students of the Tarbiyah and Teacher Training Faculty of UIN Alauddin Makassar still tend to be passive in the learning process activities. Active interaction, both between students and students as well as between students and lecturers, is also still lacking. Students do more activities using discussion methods, lectures, and power point (PPT). In order for educators to progress, it is necessary to improve the use of media. Other activities such as asking questions or expressing opinions and exchanging ideas are still lacking, especially the participation in learning.

For this reason, the use of learning methods is important in student learning. Using a monotonous method can make students feel quickly bored in participating in learning.

Meanwhile, if the teacher uses more than one method in teaching students for that role in teaching and learning, it can make students remember the lessons being taught because they are involved (Marwa, Munirah, Angriani, & Sriyanti, 2020). Especially in tertiary education study programs, the Faculty of Tarbiyah and Teacher Training, the Teacher Professional Ethics subject tries to frequently use media and learning methods side by side with the brainstorming method because this subject is very important to create a creative lecturer in teaching so when the researchers use the brainstorming method, the students are invited to think critically and collect as many creative ideas as possible in a group or give suggestions which is also called an inventory of ideas.

Sani (2013) argues that the brainstorming method is a method of collecting a large number of ideas from a number of groups of people in a short time. This method is often used in creative problem solving and can be used alone or as part of other strategies. This method is very useful for generating enthusiasm for learning and a fun atmosphere into group activities, as well as developing the creative ideas of each student. This method is used to generate as many ideas as possible on a given topic.

The preliminary study found that the use of the brainstorming method, especially teaching materials in the PAI Study Program, Faculty of Tarbiyah and Teacher Training, UIN Alauddin Makassar was in the form of discussion methods, lectures, and the use of power point (PPT) taken from the results of interviews at the initial meeting of semester V students on behalf of Naellan Silastri Adyan class of 2020. The same thing happened in other subjects. Further observations found that students the name Hijratul Rezky with the same class that learning with the brainstorming method has a better level of understanding and seriousness of learning. The brainstorming method is intended to respect the opinions of others, to grow self-confidence in developing ideas that are found or considered correct because students can build knowledge and security based on the abilities possessed and perfected by the lecturer. Learning can run quickly and effectively to the students (Wijayanti, Adi, & Ivada, 2013).

This is an interesting study, considering the very large number of tertiary institutions and the Ethics of Teaching Professional Development subject which is a Faculty course that must be programmed. So that the researcher as a lecturer in the ethics of the development of the teaching profession found that there is no serious concern about how to implement the Brainstorming Learning Method in the Teaching Professional Ethics Course, PAI Study Program, Faculty of Tarbiyah and Teacher Training, UIN Alauddin Makassar. Teaching Professional Ethics material can be easily understood using the brainstorming method because this method is a plan or tool used to accommodate group creativity and it is usually used to generate as many ideas as possible in the learning process. Therefore, the brainstorming method was chosen as the research focus in the teaching profession ethics method.

The use of the method should be a part that must receive the attention of the lecturer/facilitator in every learning activity. Therefore, lecturers/facilitators need to learn how to determine learning methods in order to achieve effective learning objectives in the learning process. Brainstorming as a constructivist technique (Hidayanti,

Rochintaniawati, & Agustin, 2018) in which groups are formed to find conclusions on a particular problem by collecting a list of ideas from members (Goswami, Jain, & Koner, 2017). As a student-centered method, brainstorming encourages student participation in small groups through open discussion (Unin & Bearing, 2016) so that students are active in conveying ideas in the learning process (Srihandayani & Marlina, 2019).

Several previous studies have been conducted to implement the brainstorming method for better student learning outcomes. Amoush (2015) in his research showed that brainstorming has a significantly positive impact on student learning outcomes. Alfian, Kaso, & Raupu (2020) also shows that brainstorming learning makes students more active in the learning process so that it is effective in improving student learning outcomes. Likewise in the study of Yuliani, Bharati, & Warsono (2019), it shows that the use of brainstorming is effective in improving student skills.

RESEARCH METHOD

This research is descriptive qualitative research that aims at describing existing phenomena, both natural phenomena and man-made phenomena. The research approach used is the study approach and methodological approach. The study approach includes pedagogical, sociological, and managerial, these three approaches are used because the object under study requires the assistance of the services of these sciences. The data sources used are primary data and secondary data. Primary data sources include lecturers who have used the brainstorming method at the the Faculty of Tarbiyah and Teacher Training who are considered capable of providing valid and accurate information, which is used as a data source while the secondary data sources are references or books that are relevant to the problem that is the focus of research that is able to support primary data. The data collection is done through observation, interviews, and documentation. To collect the data, some instruments were used in the form of: (1) observation checklist that the researcher used when observing learning and teaching activities during the implementation of brainstorming method, (2) interview guidelines that the researcher used to find out the implementation of the brainstorming learning method in improving the learning outcomes of PAI's students in which the lecturers and students of PAI Study Program are used as supporting informants, and (3) archival documentation on the quality of students in PAI study program. The data analysis techniques used are data condensation, data display, and data verification or inference. Testing the validity of the data was done through: (1) persistent observation, (2) triangulation, (3) giving checks, and (4) referential adequacy checks (Sugiyono, 2017). Validity testing by triangulation was carried out by source triangulation, technical triangulation, and time triangulation.

RESULTS AND DISCUSSION

The Implementation of Brainstorming Learning Method in the Teacher Professional Ethics Subject in PAI Study Program, Tarbiyah and Teacher Training Faculty, UIN Alauddin Makassar.

Implementation of the brainstorming learning method for students of the Islamic Education study program and the results of the researcher observation that the guidelines for implementing brainstorming learning activities in the Islamic education study program at the Faculty of Tarbiyah and Teacher Training of UIN Alauddin Makassar are carried out as follows: first, identifying and classifying changes in behavior and personality expected of students that is the desired change from humans as a result of learning later. Therefore, the purpose must be formulated in a clear and concrete formulation so that it will be easy to understand. Second, choosing the most effective and appropriate approach, namely how to view/solve a particular case. Differences in how to view or approach a case will lead to differences in the results to be achieved. Third, choose and determine brainstorming learning procedures and teaching and learning techniques that are considered the most effective and efficient, so that they can be used as a guide by lecturers in carrying out their duties. It should be understood, that a method may only be suitable for achieving a goal.

The results of the researcher's observations on the Islamic Education study program at the Tarbiyah and Teacher Training Faculty of UIN Alauddin Makassar, apart from what has been mentioned in the focus description above, there are several methods that are often used by lecturers in learning, namely; group resume, brainstorming point, counter point, snowballing, reading guide, modeling the way, jigsaw learning, and role playing, everyone is a teacher here, physical self assessment, and collaborative problem solving. The characteristics of the purpose of this method can be seen in the chart as follows:

Table 1. Learning Methods Often Used

Strategy	Student Activity
Group resume	Students exchange opinions and experiences
	Summarize or take the main ideas
	Summarize together the essence of lecture material
Point counter point	express ideas
	put forward a critique
	defend opinion
	set their own discussion mechanism
	control the course of the dialogue
3. Snowballing	express individual ideas
	share the ideas
	involve in group discussion
	made a conclusion
	do presentations
4. Reading guide	Read and understand teaching materials
	Take the main ideas
5. Modelling the way	Read and understand the contents of the reading
	Discuss the idea
	Demonstrate it

	Ask and answer
	Provide feedback
6. Jigsaw learning	Create group resumes
	Mutual explanation of the results of the resume to members
	Make questions and answers
7. Role playing	Take the role around
	Discuss with the group
8. Every one is a teacher here	Make questions about the topics that have been studied
	Answer questions to other students
9. Brainstorming	Express opinions or experiences
	Sort out inappropriate opinions
10. Physical self assessment	Express attitude or position
	Present arguments for his attitude
	Answer the questions asked
11. Problem solving	Discuss for problem solving
	Draw conclusions
	Do presentations
	Provide feedback
12. Kolaboratif	Collaborate cooperatively
	Utilize various media and learning resources to achieve one goal of Islamic Religious Education.

Data source: Researcher's observation results (June, 2022)

These strategies and methods are the things that are most often done by the lecturers of the Islamic Education study program, Faculty of Tarbiyah and Teacher Training, UIN Alauddin Makassar. Considering that learning in tertiary institutions is also known as "andragogy" learning (adult learning) which requires a structured learning environment and strong motivation from both students and lecturer (Youde, 2018) so that student independence can develop (Ritonga, Febriani, & Kustati, 2022) and requires lecturers to create a learning atmosphere with learning brainstorming.

Such a learning atmosphere is characterized by a conducive learning atmosphere. The atmosphere that is free and creative, fun, interactive, participatory, encourages physical and psychological involvement and problem solving oriented. Because of this, the lecturers of the Islamic Education study program, Faculty of Tarbiyah and Teacher Training, UIN Alauddin Makassar, are trying to create an atmosphere of active learning in the classroom.

Based on the results of observations in the class that applied the brainstorming learning method, students were seen to be active in the learning process. This is because the steps for implementing brainstorming learning have been well implemented, starting from explaining the problems encountered and their background, inviting students to actively contribute their thoughts, students are invited to express their thoughts related to the material, suggestions put forward by students are accommodated and not

criticized, grouping based on criteria made and agreed upon by the group, as well as the lecturer/leader of the group and other groups concluding the points of the approved alternative problems. All the brainstorming learning steps that are applied look good. Brainstorming is implemented by giving opportunities to students without fear of being criticized (Aldeirre, Komala, Heryanti, 2018) so that students can express as many ideas as possible (Fikriyah & Shofiyani, 2021) in solving problems (Lyu, SHi, & Sun, 2020).

Teaching is one of the factors that influence lecturer performance (Nurdiyanto & Vem, 2015) carried out in order to transform and develop lecturer knowledge (Utomo & Rachmawati, 2021). According to Usman (2022), it is the ability to master learning material broadly and in depth for lecturers of the Islamic Education Study Program at the Tarbiyah and Teacher Training Faculty of UIN Alauddin Makassar which makes it possible to guide students to meet the competency standards set out in national education standards and becomes a benchmark for their performance as professional educators, among them namely; lecturers are required to master teaching materials. Mastery of teaching materials from lecturers is crucial to the success of teaching. Lecturers should master compulsory (basic) teaching materials, enrich the teaching materials and support the teaching materials well for their teaching needs, able to describe and organize teaching materials in a systematic manner, and able to process teaching and learning programs. Lecturers are expected to master the teaching system approach functionally, teaching principles, procedures, teaching strategies, master deeply and structured teaching materials, and able to design the use of teaching facilities, able to manage classes, able to create a conducive social class situation to learn as well as possible, and able to use media and teaching resources. Thus, lecturer performance is the implementation of tasks that are their responsibility based on competence, experience, and sincerity within a certain period of time (Retnowati, Mardapi, & Kartowagiran, 2021; Younus & Zaidan, 2022).

Through the results of interviews with Hamid that learning with the Brainstorming Method can find out and apply the right approach in the learning process that actively involves students. Furthermore, in particular, the lecturers, especially in the Islamic Education, Faculty of Tarbiyah and Teacher Training, UIN Alauddin Makassar are expected to be able to: (1) describe process skills, (2) explain active student learning methods, (3) design and implement ways of learning that involve students actively, (4) identify indicators of active student learning methods.

Learning Outcomes of the Brainstorming Method for Students of PAI Study Program, Faculty of Tarbiyah and Teacher Training, UIN Alauddin Makassar

Based on the results of interviews regarding the brainstorming learning evaluation model conducted by Lecturers in PAI Study Program as carried out by Muh. Rusmin as the secretary and lecturer in the Ethics of the Teaching Professional Development that:

> "The form of assessment that I usually do in the first teaching process is to look at student attitudes through the learning process, what are the attitudes in the Ethics and Teacher Professional Development subject in the brainstorming learning model, whether they are enthusiastic about receiving the material or not in learning".

In line with what was expressed by Usman, the lecturer and Head of the PGMI study program that:

> "The form of assessment that I did was an assessment in the form of oral questions in class (before starting learning the lecturer first gave oral questions to students in the form of understanding of the material that had been explained, then continued learning), assessment in the form of assignments, assessment in the form of group assignments, and mids and finals".

The assessment or evaluation that is carried out is not only based on the cognitive domain related to subject matter which is usually carried out after each subject and at the end of the semester, but also emphasizes affective (attitude) and psychomotor assessments. After knowing the results of the evaluation, the next step to take is to follow up for students whose grades reach competency standards, then they are given a material enrichment program, while students whose learning grades are lacking are given a remedial program, namely by repeating the material that has been taught until students really understand, then assessment is carried out in the form of a test again.

The findings of the research results regarding the assessment carried out by lecturers at PAI study program in the Teacher Professional Development Ethics subject are able to carry out learning by using the brainstorming method well so that students are enthusiastic in receiving material because the material uses the brainstorming method which is not boring in class, every time after explaining the material and evaluation at the end of the semester turned out to be very satisfactory grades. The manifestation of learning outcomes is a change in behavior. Learning activities are said to be efficient if certain learning efforts provide maximum learning results.

The introduction of lecturers in the Islamic Education Study Program at the Tarbiyah and Teacher Training Faculty of UIN Alauddin Makassar to the various factors that affect student learning achievement is very important. This will be very useful for lecturers in an effort to help students to achieve optimal learning achievement according to their respective abilities. Various studies show that student achievement in the Islamic Education Study Program at the Tarbiyah and Teacher Training Faculty of UIN Alauddin Makassar is basically influenced by two main factors, namely: "internal factors and external factors from students or from the environment".

H. A. Marjuni Lecturer of PAI Study Program stated that:

> "To understand the teaching and learning process activities, so as to increase student achievement, it is necessary to analyze the model approach and learning methods, while looking at the various factors that can influence learning processes and outcomes."

The results of the implementation of learning the Brainstorming method in the Ethics of Teaching Professional Development subject in the Islamic Education Study Program at the Tarbiyah and Teacher Training Faculty of UIN Alauddin Makassar increase Human Resources (HR), which are truly intact, not only physically but also mentally. HR competence has a major influence on lecturer performance (Solekan,

Setiadi, & Rahayu, 2022). Improving the quality of human resources is carried out in harmony with the objectives of the prophetic mission, namely: (a) Students have a synergistic role in preserving Islamic values. (b) Students have transformative learning values. (c) Students have the values of intellectual intelligence who are polite in attitude and skilled at work.

The brainstorming learning method is proven to be able to influence student learning outcomes, from the cognitive domain, in terms of knowledge and understanding, students will think hard about a problem raised by the lecturer which will drain their minds, from this thinking process students will become more aware of what is proposed by the lecturer. Brainstorming can improve students' creative thinking skills (Lim, Yusof, & Ismail, 2018) and make students' minds active thereby facilitating knowledge reconstruction (Doğan & Batdı, 2021). With brainstorming as a technique that is carried out by discussing and debating about a problem, solutions can be found in groups (Shirazi, Heidari, & Hosseinzadeh, 2023) and generate strategies to solve problems (Rashid, 2020). The effectiveness of the brainstorming method can be proven by: (1) the emergence of new ideas; (2) encourage personal contributions; (3) social development includes self-esteem, identity, ability to withstand adversity; (4) the use of high-level mental processes including abstract thinking, critical thinking; (5) cultivation includes tolerance, motivation, desire to know, creativity, individual and group responsibility; and (6) using self-assessment (Babut, 2021).

CONCLUSION

Based on the results of the research that has been analyzed, the researcher can draw the following conclusions: the brainstorming learning method implemented to students of PAI Study Program at Tarbiyah and Teacher Training Faculty of UIN Alauddin Makassar, namely the lecturer tries to create a conducive classroom climate, manages, provides feedback and provides reinforcement in presenting learning material, and self-renewal and development of all learning components. The implementation of the brainstorming learning method for PAI Study Program students at the Tarbiyah and Teacher Training Faculty of UIN Alauddin Makassar is as follows; first, creating strong interpersonal skills, especially empathy, respect, and sincerity; second, creating good relationships with students in discussions; third, being active in receiving material as a whole for students in the classroom; fourth, expressing interest and enthusiasm; and fifth, creating an atmosphere of togetherness and group cohesion as well as involving students in the arrangement and planning of learning. Students seem active in the learning process when using brainstorming learning method. The learning outcomes of the Brainstorming method for students of PAI Study Program, Faculty of Tarbiyah and Teacher Training, UIN Alauddin Makassar, namely; students are able to issue ideas, opinions, and able to respond to any problems or cases in group discussions on each theme presented in the classroom. So, each student has a contribution in solving the problem, and the relationship between students and lecturers, the level of freedom, a sense of security and the skills of lecturers in communication. The form of assessment

that the lecturers usually do first is to look at the student's attitude through the learning process, how is the attitude towards the subject, whether he is happy or not. In this case, it can be seen through assignments that are usually carried out when the lecturer is doing the learning so that changes in behavior occur, learning activities are said to be efficient if the Brainstorming Method for Students of PAI Study Program, Faculty of Tarbiyah and Teacher Training, UIN Alauddin Makassar is given optimally can give learning results, such as: intellectual skills, (2) cognitive strategies, (3) affective, and (4) psychomotor skills. Further research can be carried out by collecting data from students so that students' perspectives can also be seen in attending classes using the brainstorming method. With this data, researchers can see the process of learning that is fun for students so that it can be used as evaluation material in preparing for the next class. In addition, learning outcomes data can also support the success of the brainstorming method, so it is advisable to use mixed method research.

REFERENCES

Aldeirre, D., Komala, R., & Heryanti, E. (2018). Pengaruh Metode Pembelajaran Brainstorming Terhadap Kemampuan Berpikir Kritis Materi Vertebrata Pada Siswa SMA. *Florea : Jurnal Biologi Dan Pembelajarannya*, *5*(2), 110–116. https://doi.org/10.25273/florea.v5i2.3451.

Alfian, E., Kaso, N., Raupu, S., & Arifanti, D. R. (2020). Efektivitas Model Pembelajaran Brainstorming dalam Meningkatkan Hasil Belajar Matematika Siswa. *Al Asma: Journal of Islamic Education*, *2*(1), 54–64. https://doi.org/10.24252/asma.v2i1.13596.

Amoush, K. H. (2015). The Impact of Employing Brainstorming Strategy on Improving Writing Performance of English Major Students at Balqa Applied University in Jordan. *Journal of Education and Practice*, *6*(35), 88–92. https://doi.org/https://core.ac.uk/download/pdf/234638234.pdf.

Babut, T.-M. (2021). Brainstorming and Modern Teaching Strategies in Preschool Education. *Acta Didactica Napocensia*, *14*(1), 201–207. https://eric.ed.gov/?id=EJ1309102.

Doğan, Y., & Batdı, V. (2021). Revisiting Brainstorming Within an Educational Context: A Meta-Thematic Analysis. *Journal of Learning for Development*, *8*(3), 541–556. https://doi.org/10.56059/jl4d.v8i3.495.

Fikriyah, W., & Shofiyani, A. (2021). Implementasi of the Brainstorming Method to Improve Learning Outcomes of Aqidah Akhlak Subjects. *MULTIDISCIPLINE - International Conference 2021*, 21–26. https://ejournal.unwaha.ac.id/index.php/ICMT/article/view/2192.

Goswami, B., Jain, A., & Koner, B. C. (2017). Evaluation of Brainstorming Session as a Teaching-learning Tool among Postgraduate Medical Biochemistry Students. *International Journal of Applied and Basic Medical Research*, *7*(1), S15–S18. https://doi.org/10.4103/ijabmr.IJABMR_191_17.

Hidayanti, W. I., Rochintaniawati, D., & Agustin, R. R. (2018). The Effect of Brainstorming on Students' Creative Thinking Skill in Learning Nutrition. *Journal of Science Learning*, *1*(2), 44–48. https://doi.org/10.17509/jsl.v1i2.8738.

Lim, K. K., Yusof, Y. M., & Ismail, Z. (2018). Creative Thinking of Engineering Undergraduates through Brainstorming during Mathematical Problem Solving. *International Conference on Teaching, Assessment, and Learning for Engineering (TALE)*, 199–206. https://doi.org/10.1109/TALE.2018.8615365.

Lyu, C., Shi, Y., & Sun, L. (2020). A Novel Multi-Task Optimization Algorithm Based on the Brainstorming Process. *IEEE*. https://doi.org/10.1109/ACCESS.2020.3042004.

Marwa, Munirah, Angriani, A. D., Suharti, Sriyanti, A., & Rosdiana. (2020). Peran Guru dalam Meningkatkan Minat Belajar Peserta Didik Kelas VI pada Masa Pandemi Covid-19. *AULADUNA: Jurnal Pendidikan Dasar Islam*, *7*(2), 215–227. https://doi.org/10.24252/auladuna.v7i2a10.2020.

Nurdiyanto, H., & Vem, E. (2015). Performance Evaluation Decision Support System Using the Lecturer Analytical Hierarchy Process (Case Study: STMIK Dharma Wacana Metro). *Jurnal TIM Darmajaya*, *1*(1), 1–16. https://www.neliti.com/id/publications/141747/performance-evaluation-decision-support-system-using-the-lecturer-analitycal-hie.

Rashid, A. (2020). Using Group Brainstorming to Help Chemical Engineering Students in Solving Problems. *Sixth International Conference on E-Learning (Econf)*, 395–399. https://doi.org/10.1109/econf51404.2020.9385504.

Retnowati, T. H., Mardapi, D., Kartowagiran, B., & Hamdi, S. (2021). A Model of Lecturer Performance Evaluation: Sustainable Lecturer Performance Mapping. *International Journal of Instruction*, *14*(2), 83–102. https://doi.org/10.29333/iji.2021.1426a.

Ritonga, M., Febriani, S. R., Kustati, M., Khaef, E., Ritonga, A. W., & Yasmar, R. (2022). Duolingo: An Arabic Speaking Skills' Learning Platform for Andragogy Education. *Education Research International*, 1–9. https://doi.org/10.1155/2022/7090752.

Sani, R. A. (2013). *Inovasi Pembelajaran*. Jakarta: Bumi Aksara.

Shirazi, F., Heidari, S., Hosseinzadeh, P., & Zolfegharzade, H. (2023). Comparison the Effects of Online Micro-Learning and Online Brain Storming on Nursing Students' Awareness About Mistreatment of HIV/AIDS Patients. *Journal of Sabzevar University of Medical Sciences*, *29*(6), 744–755. https://jsums.medsab.ac.ir/article_1535.html?lang=en.

Solekan, M., Setiadi, P. B., & Rahayu, S. (2022). The Effect of Competence and Motivation on the Performance of Lecturers in Private University. *World Journal of Advanced Research and Reviews*, *14*(03), 413–422. https://doi.org/10.30574/wjarr.2022.14.3.0572.

Srihandayani, T., & Marlina, L. (2019). Using Brainstorming Technique in Speaking Activity for Senior High School Students. *Journal of English Language Teaching*, *8*(1), 22–32. https://doi.org/10.24036/jelt.v8i1.102983.

Sugiyono. (2017). *Metode Penelitian Kualitatif (Untuk Penelitian yang Bersifat Eksploratif, Enterpretif, Interaktif, dan Konstruktif*. Bandung: Alfabeta.

Undang-Undang Republik Indonesia Nomor 20. (2003). *Sistem Pendidikan Nasional*. Citra Umbara.

Unin, N., & Bearing, P. (2016). Brainstorming as a Way to Approach Student-Centered Learning in the ESL Classroom. *Procedia - Social and Behavioral Sciences*, *224*, 605–612. https://doi.org/10.1016/j.sbspro.2016.05.450.

Utomo, H., & Rachmawati, M. (2021). Teaching Performance of Lecturers during

Pandemic Based on Knowledge and Expertise in Salatiga. *Konfrontasi Journal: Culture, Economy and Social Changes*, *8*(3), 178–185. https://doi.org/10.33258/konfrontasi2.v8i3.155.

Wijayanti, S., Adi, W., & Ivada, E. (2013). Penerapan Pendekatan Quantum Learning tipe Brainstorming untuk Meningkatkan Keefektifan Pembelajaran Akuntansi Paket C. *Jupe UNS*, *1*(2), 1–11. https://www.neliti.com/id/publications/13546/penerapan-pendekatan-quantum-learning-tipe-brainstorming-untuk-meningkatkan-keef.

Youde, A. (2018). Andragogy in Blended Learning Contexts: Effective Tutoring of Adult Learners Studying Part-time, Vocationally Relevant Degrees at a Distance. *International Journal of Lifelong Education*, *37*(2), 255–272. https://doi.org/10.1080/02601370.2018.1450303.

Younus, A. M., & Zaidan, M. N. (2022). The Effect of Knowledge Management and Organizational Commitment on Lecturer Performance in University. *Middle European Scientific Bulletin*, *25*, 55–68. https://doi.org/10.47494/mesb.2022.25.1353.

Yuliani, W., Bharati, D. A. L., & Warsono. (2019). The Effectiveness of Brainstorming and Mind Mapping to Teach Writing Narrative Text for Students with Extrovert and Introvert Personalitie. *English Education Journal*, *9*(2), 459–466. https://doi.org/10.15294/EEJ.V9I4.32098.