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Application of the Quantum Learning Model to PGMI Students in Mathematics Learning

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Abstract

The application of learning models that are less effective and innovative can lead to low student learning outcomes, so a learning model is needed that is able to motivate students to improve learning outcomes, especially in mathematics content. This study aims to determine the increase in student learning outcomes who get the Quantum Teaching learning model at the PGMI major in mathematics learning. Quantum Teaching provides the view that students in the learning process are important not just sitting and listening, but students need to be active to find their own knowledge. The method used in this study is a qualitative method with a descriptive approach. Based on research it is known that this quantum teaching learning model can increase motivation and understanding of learning in PGMI students in mathematics lessons.

Keywords: *Learning Outcomes, Mathematics, Quantum Teaching.*

PRELIMINARY

In the learning process, there are many new learning models that allow students to be more active in finding out the knowledge they are developing. This model also promotes a shift from teacher-centered learning to experiential-centred learning. Schools/teachers analyze these desires and design learning processes/activities that can be carried out (Hendrayana, 2017).

During the learning process, the teacher acts as a facilitator and students learn in different ways, both individually and in groups, so that students' aspirations are realized (Febriani, *et.al.*, 2020). Especially in basic education, educational activity plans are implemented in the form of appropriate courses to support the implementation of educational activities. The basic education curriculum focuses more on developing reading, writing and arithmetic skills because it reflects very important mathematics learning material, especially arithmetic, applied in everyday life. day. Therefore, you must pay attention to mathematics lessons and continue to improve the learning effect of learning mathematics (Amalia, 2017).

According to Fitrah (2017), learning mathematics consists of studying the mathematical concepts and structures contained in the subject matter and looking for relationships between these mathematical concepts and structures. Students must be able to find patterns by tweaking material related to intuitive laws that students already have. Therefore, students in their learning must be mentally and actively involved in understanding the concepts and structures contained in media material. After discussing, the child understands the material to be mastered. This suggests that substances with a certain pattern or structure are easier for children to understand and remember.

At every opportunity, learning mathematics must begin by introducing problems according to scenarios (situational questions), by asking situational questions, guide participants step by step so that students master mathematical concepts. Learning process activities should give children the opportunity to manipulate specially designed destructible items or accessories in order for students to understand mathematical concepts (Trisnawati & Wutsqa, 2015).

Let the child see for himself what patterns and structural patterns are included in what he watches. The regularity is then by connecting the child attached to his intuition. This can be done by

applying the patterns learned. Applied learning model is a contextual learning model that invites students to understand the phenomena of everyday life based on knowledge in various fields of nature making learning more meaningful and less understandable, this is to make students more interested in learning and letting them participate actively in learning will affect student learning outcomes in mathematics (Tirtoni, 2015).

Low learning outcomes are caused by learning that is implemented does not reflect innovative learning. Learning occurs when the teacher presents material in front of the class and students pay attention to the teacher's explanation. The teacher does not provide examples of the use of learning materials in everyday life or demonstrate them in front of the class. This reduces student learning motivation and leads to less than optimal learning outcomes.

Teacher Education (PGMI) is one of the prospective teachers, students majoring in PGMI should receive adequate provisions to become professional teachers. Conditions in the field show that in class courses, students are treated more as learning objects. Students tend to be passive, don't dare to express opinions, are embarrassed to ask questions, are afraid of being wrong when answering questions either from lecturers or questions from other students, resulting in a lack of good interaction between lecturers and students and students and students. When working in groups, only a few students do the assignment, while the others just stay quiet and chat. This indicates that the attitude of cooperation, tolerance, curiosity and responsibility of students in groups is still lacking. Students also tend to be less thorough and careless in doing assignments and often submit assignments not on time. This attitude shows that the accuracy of work and student discipline is still lacking.

To fill this gap, the researcher aims to apply the quantum education model to mathematics learning. The quantum learning model is a fun learning method with interaction between teachers and students. The quantum method helps create an effective learning environment by using elements that exist in students, such as student curiosity and interactions that occur in the classroom (Malik & Afandi, 2020). The application of the quantum teaching model creates a comfortable learning environment, stimulates student learning activities, and helps students achieve maximum learning results. The purpose of this research is that PGMI students can apply quantum learning strategies in the subjects that will be taught later.

METHOD

The method used is a qualitative research method with a descriptive approach. The qualitative research method is a method that places the researcher as a key instrument, the data collection technique is carried out by combining inductive data and also through several tests given to students which aim to determine the increase in student understanding and achievement of the material being taught by applying the quantum learning method (Assingkily, 2021). This research was carried out at the PGMI Study Program, the time to carry out this research was the 2022/2023 academic year. Where for the subject itself, namely students majoring in PGMI.

FINDINGS AND DISCUSSION

One of the innovative and student-oriented learning strategies is the Quantum Teaching learning strategy. Quantum Teaching comes from 2 words, namely 'quantum' and 'teaching'. Quantum can be interpreted as an interaction that converts energy into light. Teaching comes from the word 'teach' in English which means to teach (Fauzi & Noviartati, 2018). Quantum teaching can also be interpreted as composing various interactions that exist in and around learning moments. These interactions include the elements for effective learning that influence student success. These interactions change students' natural abilities and talents for the better which will benefit themselves and others.

Quantum teaching is the body of knowledge and methodology used in the design, presentation and facilitation of SuperCamp (Widiyono, 2021). Quantum Teaching weaves the best of the best into a multi-sensory, multi-intelligence, and brain-compatible package, which will ultimately boost teachers' abilities to inspire and students' abilities to achieve (Darkasyi, *et.al.*, 2014).

Based on the quotation above, it can be seen that in quantum teaching there is a complexity due to the combination of various factors. Basically, the learning process is also a complex phenomenon. Therefore, everything is seen as having its own meaning in the learning process. In the learning process, to

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what extent the teacher is able to change the environment, achievement, and teaching design for the better, so far is the learning process taking place. This is the basis for the concept of quantum teaching.

The steps of the quantum teaching method consist of growing, experiencing, naming, demonstrating, repeating and celebrating or known by the acronym TANDUR (Nurmansyah, *et.al.*, 2018; Huda, 2017). The first is Grow. In general, the concept of growing is involving students, enticing them, and drawing their attention to the material to be taught. At this stage, the teacher is expected to be able to cultivate a positive attitude from the beginning of learning so as to generate curiosity in students. Teachers can start classes with simple interactions with students, which in turn provide a spark of enthusiasm to be interested in participating in the learning process.

The second is Natural. At this stage, the teacher is expected to be able to create common experiences for students through examples of events that are easy to understand. With that experience the student's brain will be stimulated to explore or find out more things than before. The third is Namai. This "name" stage is at the core of student learning activities in class. At this stage, the teacher explains the events that have been exemplified before with the material to be delivered. Teachers are expected to be able to choose words that are easy to understand, clear concepts, and strategies that students can understand.

The fourth is Demonstration. After giving examples and explanations, then give students the opportunity to apply what they have learned. This can be done by using props, role playing, or by simple games. The fifth is Repeat. This "repeat" stage basically aims to strengthen the things students have learned in the previous stages. Make it a habit to repeat things that have been discussed at the meeting. Make sure students have understood what was explained at that time. If necessary, give a summary of the material that has been discussed (Elvina & Sylvia, 2020).

The sixth is Celebrate. This stage is at the end as well as the closing of a series of quantum teaching methods. The purpose of this stage is to provide a sense of satisfaction, to respect the effort, perseverance, and success that has been passed by students so that in the end it gives a sense of satisfaction and joy. By ending something well and happily, then at the next meeting students tend to be more enthusiastic and motivated in learning (Rosad, 2019).

The Quantum Teaching research steps are notated in the form of a concept map as follows:

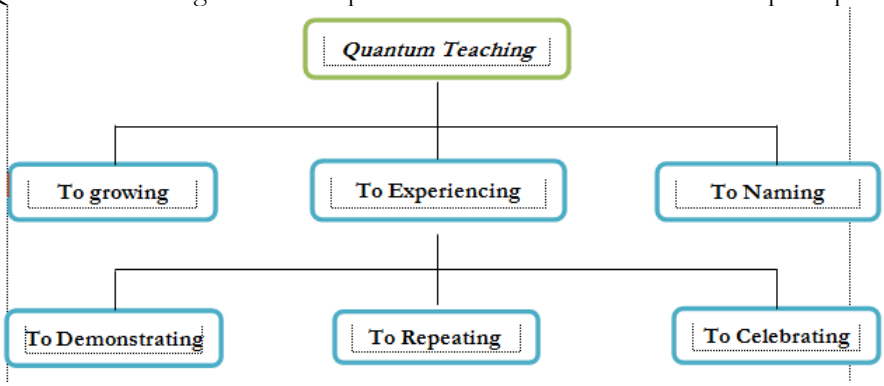

Figure 1. Quantum Teaching Research Steps

The advantages of Quantum Teaching, namely: (a) Always centered on what makes sense for students; (b) Growing and generating student enthusiasm, (c) Cooperation; (d) Offer brilliant ideas and processes in a form that is easy for students to understand; (e) Creating behavior and attitudes of self-confidence (Usman, 2015). While the shortcomings of Quantum Teaching, namely: (a) Requires careful preparation for teachers and a supportive environment; (b) Requires adequate facilities; (c) This model is mostly carried out abroad so that it is less adapted to life in Indonesia; (d) Less able to control students (Nur, 2021).

As for the results in applying this quantum learning strategy, the authors describe it in the form of pictures.

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Figure 2. Giving Test Questions

In picture (2) a teacher gives one of the questions that discusses squares and rectangles.

Figure 3. Discussion of Problems

After being given one question, the teacher gives an order to be able to work on or answer the question together. Where in this question is asked about the area of the rectangle if the values of the length and width of the rectangle are known. Not only that, the teacher also gives examples regarding the length and width of the rectangle as shown in the picture. This is done in order to understand directly the parts of the long and wide sides of the rectangle.

Figure 4. Examples of objects that have square and rectangular shapes

Furthermore, after the teacher explains the shape of the length and width of a rectangle. The next step is to provide opportunities for students to explore the surrounding environment which has square and rectangular shapes. So that it is obtained as shown in Figure 4, that is, each student gets a square and rectangular shape, each student chooses a different object.

CONCLUSION

Based on the description above, it can be concluded that the quantum teaching strategy positions students in an important capacity, thus making them more motivated to learn. Quantum learning is based on the belief that everyone can learn effectively with fun, interesting and challenging interactions. Quantum teaching is a learning method that provides broad, comfortable and enjoyable opportunities for students to play an active role in the learning process. Quantum teaching can be used as an alternative learning method, because by applying quantum learning, more students have increased self-confidence and increased motivation. Quatum teaching provides the view that students in the learning process are important not just sitting and listening but students need to be active to find their own knowledge.

REFERENCES

Amelia, D. J., & Saputra, S. Y. (2017). "Analisis Kelayakan Buku Siswa Kelas IV Tema Makhluk Hidup Kurikulum 2013" *Pedagogia: Jurnal Pendidikan*, *6*(1), 98–109. https://doi.org/10.21070/pedagogia.v6i1.617.

Assingkily, M. S. (2021). *Metode Penelitian Pendidikan*. Yogyakarta: CV. K-Media.

Darkasyi, M., Johar, R., & Ahmad, A. (2014). "Peningkatan Kemampuan Komunikasi Matematis dan Motivasi Siswa dengan Pembelajaran Pendekatan *Quantum Learning* pada Siswa SMP Negeri 5 Lhokseumawe" *Jurnal Didaktik Matematika*, 1(1), 21-34. https://jurnal.usk.ac.id/DM/article/view/1336.

Elfina, S., & Sylvia, I. (2020). "Pengembangan Lembar Kerja Peserta Didik (LKPD) Berbasis *Problem Based Learning* (PBL) dalam Meningkatkan Kemampuan Berpikir Kritis Siswa pada Mata Pelajaran Sosiologi di SMA Negeri 1 Payakumbuh" *Jurnal Sikola: Jurnal Kajian Pendidikan dan Pembelajaran*, *2*(1), 27–34. https://doi.org/10.24036/sikola.v2i1.5.

Fauzi, A. M., & Noviartati, K. (2018). "Pengaruh Model Pembelajaran *Quantum Teaching* Tipe TANDUR Ditinjau dari Motivasi Belajar Siswa" *Jurnal Elektronik Pembelajaran Matematika, 5*(3), 240-248. https://jurnal.uns.ac.id/jpm/article/view/26066.

Fitrah, M. (2017). "Pembelajaran Berbasis Masalah untuk Meningkatkan Pemahaman Konsep Matematika pada Materi Segiempat Siswa SMP" *Kalamatika: Jurnal Pendidikan Matematika, 2*(1). https://doi.org/10.22236/kalamatika.vol2no1.2017pp51-70.

Febriana, R., Yusri, R., & Delyana, H. (2020). "Modul Geometri Ruang Berbasis *Problem Based Learning* Terhadap Kreativitas Pemecahan Masalah" *AKSIOMA: Jurnal Program Studi Pendidikan Matematika, 9*(1). https://doi.org/10.24127/ajpm.v9i1.2591.

Hendrayana, A. (2017). "Pengaruh Pembelajaran Pendekatan *Rigorous Mathematical Thinking* (RMT) Terhadap Pemahaman Konseptual Matematis Siswa SMP" *Jurnal Riset Pendidikan Matematika, 4*(2), 186–199. https://doi.org/10.21831/jrpm.v4i2.15385.

Huda, F. A. (2017). "Pengertian dan Langkah-langkah Model Pembelajaran *Make Match*" *Fathan.web.id.*

Malik, A., & Afandi, M. (2020). "Peningkatan Disiplin dan Prestasi Belajar Pendidikan Agama Islam Melalui Model Pembelajaran *Quantum Teaching* Kelas VII MTS NU Al Ishlah Binabaru" *Jurnal Ilmiah Pendidikan Dasar, 7*(1), 60–67. https://doi.org/10.30659/pendas.7.1.60-67.

Nur, E. (2021). "Peran Media Massa dalam Menghadapi Serbuan Media Online" *Majalah Ilmiah Semi Populer Komunikasi Massa*, *2*(1). https://jurnal.kominfo.go.id/index.php/mkm/article/view/4198.

Nurmansyah, E., Tandililing, E., & Oktavianty, E. (2018). "Upaya Meningkatkan Hasil dan Aktivitas Belajar Siswa Melalui Model *Auditory Intellectually Repetition* (AIR) pada Materi Energi" *Jurnal Pendidikan dan Pembelajaran*, *7*(5), 1–9. https://jurnal.untan.ac.id/index.php/jpdpb/article/view/25778.

Rosad, A. M. (2019). "Implementasi Pendidikan Karakter Melalui Kegiatan Pembelajaran di Lingkungan Sekolah" *Tarbawi: Jurnal Keilmuan Manajemen Pendidikan*, *5*(02), 173–190. https//doi.org/10.32678/tarbawi.v5i02.2074.

Suyantini, N. L. (2019). "Penerapan Model Pembelajaran *Quantum Teaching* untuk Meningkatkan Hasil Belajar IPA Siswa Kelas IXe Semester Ganjil SMP Negeri 2 Kubu Tahun Pelajaran 2017/2018" *Jurnal IKA, 17*(1), 69-79. https://ejournal.undiksha.ac.id/index.php/IKA/article/view/19840/12652.

Sudarman, W. S., & Vahlia, I. (2016). "Efektifitas Penggunaan Metode Pembelajaran *Quantum Learning*

Terhadap Kemampuan Pemahaman Konsep Matematis Mahasiswa" *Al-Jabar: Jurnal Pendidikan Matematika, 7*(2), 275-282. https://doi.org/10.24042/ajpm.v7i2.42.

Tirtoni, F. (2015). "Penerapan Metode *Quantum Learning* Berkarakter pada Pembelajaran Pendidikan Kewarganegaraan (PKn) Siswa Kelas VI A SD Al-Falah Tropodo" *Pedagogia: Jurnal Pendidikan*, *4*(2), 161–167. https://doi.org/10.21070/pedagogia.v4i2.19.

Trisnawati, T., & Wutsqa, D. U. (2015). "Perbandingan Keefektifan *Quantum Teaching* dan TGT pada Pembelajaran Matematika Ditinjau dari Prestasi dan Motivasi" *Jurnal Riset Pendidikan Matematika, 2*(2), 296–307. https://doi.org/10.21831/jrpm.v2i2.7348.

Usman, N. (2015). "Strategi Pembelajaran Inkuiri Jurisprudensial dalam Pembelajaran Pendidikan Kewarganegaraan pada Mahasiswa PGSD FKIP Unsri" *Jurnal Inovasi Sekolah Dasar*, *2*(1), 33–40. https://doi.org/10.36706/jisd.v2i1.8623.

Widiyono, A. (2021). "Penerapan Model Pembelajaran *Quantum Teaching* untuk Meningkatkan Hasil Belajar IPA" *DWIJA CENDEKIA: Jurnal Riset Pedagogik*, *5*(2), 183. https://doi.org/10.20961/jdc.v5i1.52593.