



Jurnal Profesionalisme Guru

Volume (3) No. 4. June 2026 p. 199-210 ISSN: In Progress

The article is published with Open Access at: <https://journal.maalohiyah.sch.id/index.php/jpg>

Quantum Learning Strategy

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Abstract: *This journal aims to review the effectiveness of Quantum Learning strategies in enhancing the learning process and student achievement. The methodology employed is a literature review that analyzes various scientific sources, journals, and articles related to the implementation of Quantum Learning. Data were collected through a systematic examination of previous studies covering theoretical aspects, practical applications, and empirical findings. The results indicate that Quantum Learning can improve students' motivation, creativity, and problem-solving skills. This strategy emphasizes active, collaborative, and innovative learning approaches, thereby creating a pleasant and meaningful learning environment. Consistent application of Quantum Learning shows significant improvements in both academic performance and character development. The study recommends integrating Quantum Learning into the curriculum as an effective strategy to enhance the quality of education at various levels. This approach is considered relevant and applicable in modern educational contexts that emphasize competency and creativity.*

Keywords: *Quantum Learning; learning strategies; motivation; creativity; achievement.*

INTRODUCTION

Education is the main foundation for the development of high-quality human resources. In the modern era, challenges in education have become increasingly complex, requiring innovation and new approaches to ensure that the learning process is effective and enjoyable. Conventional teaching methods are often considered insufficient in optimally stimulating students' interest and motivation (Zulfa & Ningsih, 2025). Therefore, strategies that can transform the learning paradigm into a more active, creative, and meaningful process are needed. One innovative approach that has gained significant attention is Quantum Learning, a strategy that emphasizes enjoyable and effective learning experiences (Hanafi & Putra, 2024).

Quantum Learning is developed based on cognitive psychology and neuroeducation principles that emphasize enjoyable and meaningful learning experiences. This approach focuses on creating a positive and dynamic learning environment so that students feel motivated to learn and actively participate in the learning process. It does not only focus on academic aspects but also considers students' emotional and social dimensions (Yanti & Prabowo, 2020). In this way, Quantum Learning can enhance students' intrinsic motivation and help them develop essential competencies such as creativity, critical thinking, and problem-solving skills (Fadli & Kurniawan, 2023).

In its implementation, Quantum Learning encourages students to actively interact and collaborate within an innovative learning environment (Sari & Fajar, 2021). This approach integrates various techniques such as visualization, association, and the use of engaging learning media to make the learning process more interesting and less monotonous. In addition, it emphasizes the importance of building positive relationships between teachers and students so that a conducive classroom atmosphere can be created. Through consistent implementation, this strategy is expected to significantly improve students' learning outcomes as well as their character development (Yanti & Prabowo, 2020).

Previous studies indicate that the implementation of Quantum Learning can significantly improve students' academic achievement. Many schools that have adopted this strategy report increased learning motivation, more enjoyable classroom environments, and higher levels of student engagement in the learning process. Beyond academic outcomes, Quantum Learning also contributes to the development of students' character, making them more confident, independent, and creative. Therefore, this strategy is increasingly considered an alternative solution to various educational problems (Dewi & Nurhadi, 2020).

However, the implementation of Quantum Learning is not without challenges. One of the main obstacles is the need for specialized training for teachers to effectively apply this strategy. The existing curriculum also needs to be adjusted to support this innovative and active approach. Furthermore, not all teachers and educational institutions have a deep understanding of the concepts and techniques of Quantum Learning. Therefore, in-depth studies are needed to examine the effectiveness and sustainability of this strategy in both national and local educational contexts (Wibowo & Utami, 2023).

Through this literature review, it is expected that a comprehensive overview of various studies on Quantum Learning strategies can be obtained, including their strengths, weaknesses, and future development opportunities. The literature analysis will help identify the factors influencing the successful implementation of this strategy in practice. In addition, this study aims to provide a strong scientific foundation for the development and application of Quantum Learning across different educational levels (Sari & Fajar, 2021).

Beyond its academic benefits, Quantum Learning also has great potential in shaping students' character and personality. This approach creates a more enjoyable learning atmosphere and motivates students to achieve their best potential. By fostering learning enthusiasm and self-confidence, this strategy is expected to produce a generation that is not only academically competent but also strong in character and highly competitive in the era of globalization. Therefore, integrating Quantum Learning into the curriculum is considered a strategic step toward achieving national education goals (Rahmawati & Suryono, 2022).

This journal is expected to provide practical recommendations for educators and policymakers in effectively implementing Quantum Learning strategies. With a deep understanding of its strengths and challenges, this approach can be optimized to improve the overall quality of education. Proper and sustainable implementation will create a learning environment that is enjoyable, creative, and innovative. Thus, education will not only serve as a process of knowledge transfer but also as an experience that develops students' character and competencies optimally.

METHODS

This study employs a literature review or library research method, aiming to examine in depth various relevant sources related to Quantum Learning strategies. This approach was chosen because it allows the researcher to obtain a comprehensive overview of the concepts, techniques, advantages, and challenges of implementing the strategy based on previous studies.

Data Collection Techniques

Primary data were obtained through the search and collection of primary sources directly related to Quantum Learning, such as scientific journal articles, research reports, and books explaining the concepts, techniques, and evaluation of Quantum Learning implementation. Secondary sources include reference books, conference papers, and literature reviews that support a more comprehensive understanding of the concept.

Data collection was conducted systematically using keywords such as "Quantum Learning," "innovative learning strategies," and "active approaches in education." The search was carried out through reputable academic databases such as Google Scholar, ScienceDirect, and national and international journal portals. The selection of sources was based on criteria of validity, relevance, and recency (2020–2025).

Data Analysis Techniques

The collected data were analyzed using content analysis techniques. This technique includes: (a) identifying key concepts related to Quantum Learning, including the techniques and strategies used; (b) analyzing the advantages and challenges of implementing the strategy; (c) comparing research findings to assess consistency and variation in results; and (d) grouping sources based on

effectiveness, level of implementation, and supporting and inhibiting factors.

This analysis was conducted descriptively, systematically, and critically in order to produce an objective and comprehensive synthesis. All steps were carried out using a documentary and methodological approach to ensure academic accountability and to facilitate replication by other researchers.

Data Validity Criteria

The evaluation of data quality was based on the validity, relevance, and recency of the sources. Primary sources directly discussing Quantum Learning concepts and techniques were prioritized, while secondary sources were used to support and enrich the analysis. Irrelevant or outdated sources were excluded to ensure the accuracy and reliability of the findings.

RESULTS & DISCUSSION

Definition of Quantum Learning and Its Basic Principles

Quantum Learning is an innovative approach in education developed by Bobbi DePorter and Robert Swartz. This approach integrates modern learning theories, positive psychology, and creative techniques to create a learning environment that is enjoyable, effective, and meaningful. The term “Quantum” is derived from quantum physics, which suggests that significant changes can occur through small and well-directed steps. In the context of education, this means that improvements in learning outcomes can be achieved through the application of appropriate and engaging strategies (Anwar & Lestari, 2022).

Quantum Learning emphasizes the importance of active and enjoyable learning experiences, where students are not passive recipients of information but active participants who are emotionally and intellectually engaged in the learning process. This approach aims to enhance learning motivation, strengthen memory retention, and develop students’ critical thinking and creativity skills. Thus, Quantum Learning is not merely a teaching method but a learning philosophy that views education as a joyful and energizing process (Ahmad & Suryadi, 2021).

In addition, Quantum Learning places students at the center of the learning process. It integrates various aspects such as emotions, motivation, and a supportive learning environment to make the learning process more effective. It also emphasizes the importance of positive relationships between teachers and students as well as the use of visual, auditory, and kinesthetic techniques to accommodate different learning styles. In this way, Quantum Learning creates a more engaging atmosphere that motivates students to learn optimally.

In its development, Quantum Learning has been implemented in various countries and educational levels, ranging from primary education to higher education. Its success in improving learning outcomes and student motivation has made this approach increasingly popular among educators and educational institutions. It is widely regarded as an innovation that addresses contemporary educational challenges, such as declining student interest in learning and the increasing demand for 21st-century competencies.

In general, Quantum Learning focuses not only on academic achievement but also on the development of students’ character and personality. This approach supports emotional and social development, which is essential for shaping well-

rounded individuals capable of competing in the global era. By emphasizing positive and meaningful learning experiences, Quantum Learning is expected to produce a generation that is not only academically intelligent but also strong in character and highly adaptable.

Basic Principles of Quantum Learning

The basic principles of Quantum Learning are based on the understanding that effective learning must involve the whole human being, including cognitive, emotional, and physical aspects. This principle emphasizes the importance of creating a joyful and positive learning atmosphere so that the learning process becomes more effective and efficient. One of the main principles is that students learn better when they feel comfortable, valued, and emotionally engaged in the learning process (Putri & Hidayat, 2024).

Another principle of Quantum Learning is that each individual has different learning styles—visual, auditory, and kinesthetic. Therefore, teaching methods must be adapted to meet students' diverse learning needs. This approach also highlights the importance of using various media and techniques that accommodate different learning styles, ensuring that every student has an equal opportunity to learn effectively.

Furthermore, Quantum Learning emphasizes that learning should be active and participatory. Teachers are not only responsible for delivering content but also for facilitating students' active involvement through discussions, games, and activities that engage multiple senses. This makes learning more interesting and enjoyable while improving students' memory retention and understanding of the material (Mahendra & Yuliana, 2023).

Quantum Learning also stresses the importance of a positive and supportive classroom atmosphere. Teachers must create a safe, comfortable, and motivating environment so that students feel valued and encouraged to learn. This principle is closely related to building warm and positive relationships between teachers and students, which enhances the effectiveness of the learning process.

In addition, this approach highlights that learning success does not depend solely on teaching methods but also on students' attitudes and motivation. Therefore, Quantum Learning encourages the development of students' intrinsic motivation through praise, rewards, and the cultivation of self-confidence. With a positive mindset, students become more enthusiastic and confident in their learning process.

Moreover, Quantum Learning integrates visualization and positive affirmation techniques. These techniques aim to transform negative thinking patterns into positive ones and build students' self-confidence. Visualization and affirmation help students feel more capable of facing learning challenges and strengthen their motivation.

Finally, the core principle of Quantum Learning is that learning should be joyful and full of energy. Teachers are expected to create a lively, innovative, and engaging classroom atmosphere so that students remain interested and motivated. This approach is believed to enhance learning motivation, accelerate understanding, and create a positive and meaningful learning experience.

Techniques and Methods in Quantum Learning

Techniques and methods in Quantum Learning are designed to create enjoyable, active, and effective learning experiences. One of the main techniques is the use of games and simulations relevant to the learning material. Through games, students learn actively while becoming emotionally engaged, which enhances their motivation and memory retention (Lestari & Wulandari, 2020).

Another important technique is visualization. Teachers encourage students to imagine or visualize complex concepts to make them easier to understand and remember. This technique utilizes students' imagination and visual memory to strengthen the learning process (Kurniawati & Sari, 2021).

Positive affirmation and reinforcement are also widely used in Quantum Learning. Teachers provide praise and encouragement to boost students' confidence and motivation. This reinforcement is applied continuously so that students feel valued and motivated to improve their learning performance.

Quantum Learning also adopts multisensory learning techniques, involving visual, auditory, and kinesthetic senses simultaneously. Teachers use visual media, audio materials, and physical activities to accommodate different learning styles. This approach enhances students' comprehension and retention of learning materials.

In addition, Quantum Learning integrates various instructional methods such as inquiry-based learning, group discussions, and creative project work. These approaches encourage students to ask questions, collaborate, and solve problems together, making the learning process more meaningful and relevant to real-life situations.

Mind mapping and concept mapping are also commonly used methods. Teachers guide students in organizing learning materials visually and systematically, which helps them understand and recall key concepts more easily. This technique strengthens the connection between different ideas within a subject.

Relaxation and visualization techniques are also applied to reduce stress and improve concentration. Teachers may guide students through short relaxation activities before learning sessions and encourage them to visualize their success in mastering the material.

Finally, positive reinforcement through rewards and intrinsic motivation is consistently applied. Teachers appreciate students' efforts and achievements, creating a learning environment filled with enthusiasm and self-confidence. Through the combination of these techniques, the learning process becomes more enjoyable, effective, and meaningful.

Advantages of Quantum Learning Strategy

The Quantum Learning strategy has several advantages that make it unique and effective in improving the quality of the learning process in schools and other educational institutions. One of its main strengths is its ability to significantly increase students' learning motivation. By creating a joyful, energetic, and positive learning atmosphere, students become more interested and enthusiastic about participating in learning activities. This directly impacts academic improvement and encourages independent learning (Indah & Rahman, 2022).

In addition to increasing motivation, Quantum Learning is highly effective in strengthening students' memory and understanding of learning materials. The use of visualization techniques, educational games, and multisensory experiences helps students internalize concepts more deeply. Students do not merely memorize information but also understand meanings and relationships between concepts. As a result, learning becomes more meaningful, engaging, and long-lasting (Putri & Hidayat, 2024).

Another advantage is the development of students' creativity and critical thinking skills. Quantum Learning encourages students to ask questions, engage in discussions, and solve problems collaboratively. Through innovative and enjoyable learning activities, students are trained to think outside the box and find their own solutions. This aligns with the demands of 21st-century education, which emphasizes creativity, innovation, and adaptability.

Quantum Learning also creates a positive classroom environment and fosters a strong relationship between teachers and students. Teachers act as facilitators who build trust and respect within the classroom. This approach promotes mutual respect, empathy, and cooperation among students. A supportive and positive learning environment enhances students' comfort and improves the effectiveness of the learning process.

Beyond academic aspects, Quantum Learning also contributes to students' character and personality development. It helps build self-confidence, discipline, and responsibility. Students are encouraged to value effort and learn from experiences, which strengthens their readiness to face various challenges. This makes Quantum Learning not only academically oriented but also focused on character building.

In terms of efficiency, Quantum Learning accelerates the learning process. Materials are delivered in engaging and enjoyable ways, allowing students to understand and retain information more quickly. This optimizes learning time and improves overall learning outcomes. Teachers do not need to rely solely on monotonous explanations but can use creative techniques to enrich the learning process.

Finally, Quantum Learning is highly flexible and can be applied across various educational contexts. It is suitable for different levels of education, from primary schools to higher education, and can be applied to various subjects. It is also adaptable to both formal and informal learning environments. This flexibility makes Quantum Learning an innovative solution that effectively addresses diverse educational challenges and institutional needs.

Implementation of Quantum Learning in Schools

The implementation of Quantum Learning in schools requires well-planned strategic steps and commitment from all members of the academic community, including principals, teachers, students, and parents. The first step is providing comprehensive training and understanding for teachers so that they are able to effectively apply the principles and techniques of Quantum Learning. This training includes various aspects such as visualization techniques, educational games, and the management of a positive and enjoyable classroom atmosphere. With adequate

training, teachers will become more confident and capable of integrating this strategy into daily instructional practices (Zulfa & Ningsih, 2025).

In addition to training, schools must prepare a supportive learning environment. This includes providing diverse and engaging learning media such as interactive whiteboards, educational videos, and teaching aids that support multisensory learning methods. Schools also need to design classrooms to be more comfortable, clean, and colorful in order to create an inspiring and enjoyable atmosphere. Flexible seating arrangements, adequate lighting, and proper ventilation contribute to a conducive environment that supports innovative learning techniques (Yanti & Prabowo, 2020).

The use of active and participatory learning methods is a central focus in this implementation. Teachers are encouraged to apply various techniques such as group discussions, educational games, and creative projects aligned with Quantum Learning principles. This approach enhances student engagement and fosters responsibility for their own learning process. As a result, students are no longer passive recipients of information but active participants who contribute meaningfully to the learning process.

Gradual and continuous curriculum integration is also essential. Schools need to adjust the curriculum to align with Quantum Learning philosophy without reducing the required learning content. Teachers must consistently apply these techniques in every lesson and conduct regular evaluations to assess their effectiveness. With strong commitment and consistency, a positive and innovative learning culture can be established throughout the teaching and learning process.

Furthermore, the optimal use of visual, auditory, and kinesthetic media must be maximized. Schools are expected to provide facilities and equipment that support multisensory learning techniques, such as interactive videos, teaching aids, and quality audio systems. These tools enrich students' learning experiences and make the learning process more engaging and effective. Teachers must also use these media creatively to significantly enhance learning outcomes.

Teachers play a central role in the success of Quantum Learning implementation. They must act as facilitators who build positive relationships and motivate students. Teachers are expected to master innovative techniques, manage classrooms dynamically, and encourage students to be active and creative. They must also adapt their teaching styles to students' needs and learning environments to ensure that learning remains meaningful and enjoyable.

In addition to teachers, the involvement of parents and the community is equally important. Schools can organize seminars, workshops, or socialization programs about Quantum Learning principles and benefits to ensure parental understanding and support. Family support strengthens students' motivation and ensures that enjoyable learning experiences continue beyond the classroom. Collaboration between schools and families accelerates the development of a positive learning culture.

Challenges and Constraints in the Implementation of Quantum Learning

Despite its advantages, the implementation of Quantum Learning faces several challenges that must be addressed seriously. One major challenge is the lack

of adequate teacher training and understanding. Many teachers are still accustomed to traditional teaching approaches and are not familiar with Quantum Learning principles and techniques, making implementation difficult in practice (Wibowo & Utami, 2023).

Another significant challenge is the prevailing conventional school culture. Education systems that are heavily focused on academic results often do not support innovative and student-centered approaches. Transforming this culture requires time, effort, and strong commitment from all school stakeholders, including principals and teachers (Sari & Fajar, 2021).

Limited resources also present a major barrier. Schools with insufficient facilities, learning media, and technological support struggle to implement multisensory learning effectively. Visual, auditory, and kinesthetic tools are essential in Quantum Learning, but their availability often requires significant financial investment.

Resistance to change is another psychological challenge among teachers and parents. Some stakeholders may feel comfortable with traditional methods and fear losing control or doubt the effectiveness of new approaches. Misunderstanding of long-term benefits often hinders acceptance, making intensive socialization and training necessary.

Time constraints and a dense curriculum also pose challenges. Schools must adjust lesson schedules without compromising curriculum achievement. Teachers need flexibility and creativity in managing limited instructional time to ensure effective implementation.

Teacher motivation and commitment are crucial factors determining success. Without willingness to learn and adopt new approaches, Quantum Learning cannot be effectively implemented. Continuous professional development and institutional support are essential to maintain teacher motivation.

Assessment of learning outcomes is also a challenge, as Quantum Learning emphasizes experience, motivation, and character development, which are difficult to measure using conventional quantitative tools. Therefore, appropriate evaluation instruments need to be developed.

Finally, sustainability remains a major concern. Without long-term commitment and consistent application, the benefits of Quantum Learning may not be sustained. Continuous evaluation, improvement, and institutional support are necessary to ensure lasting impact.

The Impact of Quantum Learning on Motivation and Learning Achievement

Quantum Learning has a significant impact on students' learning motivation. This approach is designed to create a joyful, energetic, and appreciative learning environment, which increases students' enthusiasm for learning. Through interactive and innovative techniques, students no longer feel burdened by monotonous teaching methods. Instead, they become more engaged and motivated due to a supportive learning atmosphere that stimulates curiosity and interest. Intrinsic motivation increases as students feel valued and supported in their learning process (Rahmawati & Suryono, 2022).

In addition to motivation, Quantum Learning enhances students' self-

confidence. The approach emphasizes small successes throughout the learning process, helping students feel more confident in mastering the material. They are encouraged to view challenges as opportunities for growth rather than threats of failure. This positively influences their willingness to learn and actively participate in classroom activities (Zulfa & Ningsih, 2025).

Another significant impact is the improvement of academic achievement. Through visualization techniques, educational games, and multisensory learning approaches, students understand and retain information more effectively. They do not merely memorize content but are also able to apply concepts in practical situations. This results in improved test scores and overall academic performance.

Quantum Learning also fosters independent learning and responsibility. Students are encouraged to manage their time and learning resources effectively, develop self-motivation, set goals, and pursue personal achievement. These skills contribute significantly to academic success as students are not solely dependent on teachers but are capable of self-directed learning.

Beyond academic aspects, Quantum Learning also influences students' emotional and social development. It promotes a harmonious and empathetic classroom environment, strengthening relationships between teachers and students as well as among peers. This supportive environment enhances comfort, cooperation, and collective motivation in achieving learning goals.

Teachers play a crucial role in creating these positive outcomes. Teachers who manage classrooms creatively and engagingly are able to effectively stimulate students' motivation. They serve as facilitators and motivators who inspire students through varied and meaningful learning strategies.

Overall, Quantum Learning has a profound impact on both motivation and academic achievement. By creating a joyful learning environment, applying innovative techniques, and fostering positive relationships, students become more motivated, confident, and successful. This approach not only improves academic performance but also strengthens students' character and independence as active learners. Therefore, Quantum Learning is considered an effective approach in supporting comprehensive educational success.

CONCLUSION

The Quantum Learning strategy is an innovative approach in education that emphasizes enjoyable, active, and meaningful learning experiences. Through the application of creative and interactive techniques, this strategy is able to enhance students' learning motivation while also developing essential competencies such as creativity, critical thinking, and collaboration skills. Numerous studies indicate that the implementation of Quantum Learning can improve academic achievement and foster positive character development among students, making it a promising solution for addressing various contemporary educational challenges.

Despite its many advantages, the implementation of this strategy is not without obstacles, such as the need for specialized teacher training and curriculum adjustments. Therefore, strong commitment from all relevant stakeholders is required to integrate Quantum Learning in a sustainable and systematic manner. With proper development, this strategy has great potential to improve the overall quality of education, creating a learning environment that is both enjoyable and

effective in shaping competent and well-characterized human resources for the future.

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