Jurnal Ilmiah Mahasiswa
RAUSHAN FIKR
Vol. 13 No. 2 July-December 2024
https://ejournal.uinsaizu.ac.id/index.php/raushanfikr
Accredited SINTA 3
P-ISSN: 2354-9688
E-ISSN: 2548-5393

IMPLEMENTATION OF CONTEXTUAL TEACHING AND LEARNING FOR BASIC NATURAL SCIENCES AT MADRASAH IBTIDAIYAH, UNUGHA CILACAP

[1] Anastya Nida Alhana*, [2] Sedya Santosa, [3] Wida Nurul Azizah,
[12] UIN Sunan Kalijaga Yogyakarta, [3] UNUGHA Cilacap
*Corresponding Author: 22204085013@student.uin-suka.ac.id

Received:	Reviewed:	Published:
November 23, 2023	December 2023-June 2024	August 12, 2024

ABSTRACT
This research aims to spread the implementation of learning innovations in Basic Natural Science courses at Madrasah Ibtidaiyah (MI Basic Science) using the Contextual Teaching and Learning (CTL) method at Nahdlatul Ulama Al Ghazali University (UNUGHA) Cilacap. The research method used is a case study with a qualitative approach. The aim of this research is to assess the effectiveness of the CTL method in increasing students' understanding of Basic Natural Sciences and the extent to which this learning innovation is implemented in the MI educational environment. Through observations, interviews, and documentation analysis, this research describes how CTL is implemented, student responses, and its impact on understanding MI Basic Science concepts. The research results show that the implementation of CTL at UNUGHA Cilacap succeeded in increasing student involvement and the relevance of the material to everyday contexts. Students show increased understanding of MI Basic Science concepts, and this method provides significant support for achieving learning objectives. In conclusion, CTL is effectively applied in educational contexts, providing a stimulative and interactive learning environment. The practical implications of this research are recommendations for continuing to apply the CTL method in the development of the MI Basic Science curriculum.

Keywords: CTL, Innovation, Learning, Lecturers, Students

ABSTRAK
Penelitian ini bertujuan untuk menyebarluaskan implementasi inovasi pembelajaran dalam mata kuliah Ilmu Pengetahuan Alam Dasar di Madrasah Ibtidaiyah (IPA Dasar MI) menggunakan metode Contextual Teaching and Learning (CTL) di Universitas Nahdlatul Ulama Al Ghazali (UNUGHA) Cilacap. Metode penelitian yang digunakan adalah studi kasus dengan pendekatan kualitatif. Tujuan penelitian ini adalah untuk menilai efektivitas metode CTL dalam meningkatkan pemahaman mahasiswa terhadap Ilmu Pengetahuan Alam Dasar serta sejauh mana inovasi pembelajaran ini diimplementasikan dalam lingkungan pendidikan MI. Melalui observasi, wawancara, dan analisis dokumentasi, penelitian ini menggambarkan bagaimana CTL diimplementasikan, respon mahasiswa, dan dampaknya terhadap pemahaman konsep IPA Dasar MI. Hasil penelitian menunjukkan bahwa penerapan CTL di UNUGHA Cilacap berhasil meningkatkan keterlibatan mahasiswa dan relevansi materi dengan konteks sehari-hari. Mahasiswa menunjukkan peningkatan pemahaman terhadap konsep-konsep IPA Dasar MI, dan metode ini memberikan dukungan signifikan dalam mencapai tujuan pembelajaran. Kesimpulannya, CTL efektif diterapkan dalam konteks pendidikan, menyediakan lingkungan belajar yang stimulatif dan interaktif. Implikasi praktis dari penelitian ini adalah rekomendasi untuk terus menerapkan metode CTL dalam pengembangan kurikulum IPA Dasar MI.
***Kata Kunci**: CTL, Inovasi, Pembelajaran, Dosen, Mahasiswa*

DOI: 10.24090/jimrf.v13i2.12128

INTRODUCTION

The teaching of Basic Natural Sciences (IPA Dasar) in Madrasah Ibtidaiyah (MI) plays a crucial role in forming the foundational knowledge and understanding of students regarding the world around them (Sulthon, 2017). As an Islamic elementary educational institution, MI bears a significant responsibility in guiding its students towards comprehending fundamental IPA concepts, which are essential for their intellectual and spiritual development (Juhji, 2015).

UNUGHA Cilacap, as a higher education institution committed to improving the quality of education at various levels (Verry et al., 2023), takes an active role in addressing the challenges of IPA Dasar education in MI. In this context, this study aims to examine the implementation of innovative teaching methods in the IPA Dasar course at MI, by adopting the Contextual Teaching and Learning (CTL) Method.

The importance of innovation in education cannot be underestimated, especially given the rapid advancements in science and technology (Rosyiddin et al., 2022). Education is required to continuously adapt and develop teaching methods that are both relevant and effective. Previous studies have shown that traditional teaching approaches often fail to motivate students to understand and apply basic scientific concepts (Nadiroh, 2015; Serroukh & Serroukh, 2022). This creates a research gap in the effort to find teaching strategies that can enhance students' interest and understanding of IPA Dasar.

One approach that has garnered attention in educational literature is Contextual Teaching and Learning (CTL). CTL integrates real-world contexts into the learning process, making the subject matter more relevant and engaging for students (Wijaya, 2015). In the context of IPA Dasar, the use of CTL can help students see the connection between the theories taught in class and their practical applications in everyday life. This not only increases students' interest but also deepens their understanding of scientific concepts (Kurniasih, 2021).

The urgency of studying CTL in teaching IPA Dasar lies in its potential to address the current educational challenges (Rahmawati, 2018). With the rapid advancement of technology, students' ability to apply their knowledge in real-world situations is becoming increasingly important. CTL offers an approach that can bridge the gap between theory and practice, leading to more meaningful and sustainable learning experiences (Nofriani & Yusnira, 2019). Therefore, research exploring the effectiveness of CTL in this context is crucial for developing educational strategies that can meet contemporary needs and prepare students to face future challenges.

This study thus involves an exploration of the CTL teaching method as an approach that can provide relevance and contextuality to the subject matter with real-world applications, thereby enhancing students' interest and understanding of IPA Dasar.

In the context of MI, the Islamic aspect is also a crucial element that needs to be considered in the learning process. The implementation of CTL is expected not only to encompass contextual aspects but also to

align Islamic values with the teaching of IPA Dasar (Agustiningsih et al., 2024).

Several research articles discuss CTL-based learning innovations. First, Wahyu Susiloningsih's article, "Model Pembelajaran CTL (Contextual Teaching and Learning) dalam Meningkatkan Hasil Belajar Mahasiswa PGSD Pada Matakuliah Konsep IPS Dasar" (Susiloningsih, 2016), details the fundamental concepts of the CTL Model, elucidating its principles and how this approach can be integrated into the teaching of basic social science concepts. The focus is on enhancing students' understanding by linking teaching materials to everyday life, thus creating strong relevance in the learning process. The article includes research findings or case studies that support the effectiveness of the CTL Model in improving PGSD students' learning outcomes in basic social science courses. The data and findings significantly contribute to our understanding of the positive impact of contextual approaches in higher education. Furthermore, the article evaluates the challenges and opportunities encountered during the CTL Model's implementation, providing comprehensive insights into the experiences and lessons learned, thereby offering valuable considerations for applying this approach at the higher education level. Overall, the article not only details the principles and methods of teaching but also offers a holistic view of the CTL Model's impact within the context of basic social science courses for students.

Second, the article titled "Model Pembelajaran Contextual Teaching and Learning (CTL) Berbantuan Media Benda Konkret Meningkatkan Pengetahuan IPAS Siswa" (Utami et al., 2022)explores how the CTL approach, which emphasizes contextualizing learning materials with students' daily lives, can be enhanced through the use of concrete objects. The article describes the experimental design, involving the application of the CTL method integrated with concrete objects as visual and demonstrative tools. The research findings indicate that the combination of CTL and concrete media significantly improves students' understanding of science concepts. The article also includes data analysis, conclusions, and implications and recommendations for future development of CTL-based learning. Overall, it provides detailed insights into the effectiveness of the CTL Model supported by concrete media in enhancing students' science knowledge.

Third, the article titled "Implementasi Pendekatan Kontekstual dengan Variasi Metode Berbasis Masalah untuk Meningkatkan Kualitas Pembelajaran Biologi" (Sudarisman, 2013) discusses the application of a contextual approach with problem-based methods to improve the quality of biology education. The contextual approach emphasizes the relevance of learning materials to students' everyday lives, while problem-based methods offer varied approaches to solving biological issues. This implementation aims to make learning more engaging and relevant for students, enabling them to see the connections between biological concepts and the real world. By presenting varied problems, the learning process becomes not only more interactive but also enhances the understanding of biological concepts. The article details the results of this implementation, including increased student participation, improved learning outcomes, and other positive impacts on the biology learning process. Thus, this

DOI: 10.24090/jimrf.v13i2.12128

approach is expected to guide the development of more effective teaching methods in the context of biology education.

Fourth, the article titled "Inovasi Pembelajaran Pendidikan Agama Islam melalui Model Contextual Teaching and Learning dalam Meningkatkan Taraf Berpikir Peserta Didik" (Hidayat & Syahidin, 2019) by Tatang Hidayat discusses how CTL can be effectively applied to enhance students' thinking levels. CTL emphasizes the relationship between learning materials and students' daily lives, making learning more relevant and engaging. The article also explores how CTL can improve the understanding of Islamic religious concepts through active student involvement in learning. Overall, this article provides insights into how innovations in teaching methods can positively impact students' understanding and thinking levels in the context of Islamic education.

Fifth, the article titled "Pembelajaran Contextual Teaching Learning (CTL) Pada Masa Pandemi COVID-19: Sebuah Tinjauan" (Hasudungan, 2022) aims to describe CTL as an alternative learning approach during the COVID-19 pandemic. The pandemic has worsened the educational situation in Indonesia, particularly in the 3T (Frontier, Outermost, and Disadvantaged) regions. Therefore, a CTL approach is needed to adapt and develop appropriate strategies during the pandemic. This study used a literature review method, collecting data from books, documents, and journal articles. The findings show that CTL is an appropriate approach during the pandemic, emphasizing three key aspects: engaging students in discovering learning materials, encouraging them to find connections between what they learn and real-life situations, and applying it to everyday life, especially during the pandemic.

In addition to the aforementioned studies, numerous other studies discuss the implementation of CTL-based learning innovations. Unlike previous research, this article examines the implementation of learning innovations in the IPA Dasar course at MI through CTL, focusing on the context of UNUGHA Cilacap. By exploring the potential of CTL, it is hoped that the IPA Dasar learning at MI can become more dynamic, interactive, and tailored to students' needs. Through this research, we aim to make a tangible contribution to the development of quality elementary education that considers both academic and Islamic aspects.

RESEARCH METHOD

This study employs a qualitative research design with a case study approach. The use of a descriptive-qualitative method is appropriate due to its alignment with the subject and focus of the study. According to Sugiyono, this method aims to produce findings that cannot be achieved through measurement procedures or statistics (Sugiyono, 2010). This approach was chosen to gain an in-depth understanding of the implementation of innovative teaching methods in the Basic Natural Sciences (IPA Dasar) course at Madrasah Ibtidaiyah (MI) using the Contextual Teaching and Learning (CTL) method.

The participants in this study consist of third-semester students from the Madrasah Ibtidaiyah Teacher Education Program at UNUGHA Cilacap, who are involved in the IPA Dasar learning process. Participants were selected purposively, considering their

teaching experience, educational background, and class level.

To collect data sources, the researcher employed observation, interviews, and documentation techniques. Direct observations were conducted to monitor the implementation of CTL in teaching. Field notes covered aspects such as material contextualization, lecturer-student interactions, and the application of active learning methods. In-depth interviews were conducted with lecturers involved in the implementation of CTL, focusing on their experiences, challenges encountered, and the impact on student comprehension. Document analysis, including lesson plans, teaching materials, and evaluation results, was carried out to obtain additional information on CTL implementation.

The collected data were analyzed qualitatively using a thematic approach, where key findings were identified and grouped based on specific patterns. The results were presented narratively and supported with direct quotes from participants. Data validity was achieved through triangulation of data from various sources, including observations, interviews, and document studies (Moleong, 2006). Data reliability was enhanced through the involvement of the researcher as an observer directly engaged in the data collection process (Sidiq, 2019).

To further enhance data validity, the researcher implemented several key strategies. Triangulation was the primary method used, involving multiple data sources and collection techniques, including classroom observations, in-depth interviews with lecturers and students, and document analysis such as teaching notes and student assignments. By comparing and contrasting data from various sources, the researcher could identify consistency in findings and reduce potential bias.

Member checking was also utilized to ensure validity. Participants were asked to review and provide feedback on the preliminary findings or interpretations made by the researcher. This process not only enhanced data validity but also ensured that interpretations aligned with the participants' experiences and perspectives.

Additionally, the researcher employed an audit trail technique to increase the reliability of the study. This process involved detailed documentation of all research phases, including decisions made, data collection procedures, and data analysis. By providing a transparent and systematic description of how data were collected and analyzed, the researcher allowed other readers or researchers to assess the credibility and transferability of the findings.

RESULT AND DISCUSSION

Overview of the Research Object

The Madrasah Ibtidaiyah Teacher Education Program (PGMI) at Universitas Nahdlatul Ulama Al Ghazali (UNUGHA) Cilacap, under the Faculty of Islamic Studies (FKI), is committed to cultivating future educators with academic excellence, a deep understanding of Islamic knowledge, and robust pedagogical skills. The PGMI at UNUGHA Cilacap aspires to be a leading center for developing professional and Islamically-oriented MI educators, embracing essential missions to meet high educational standards (Alhana, 2023).

This program offers a meticulously designed curriculum that encompasses two crucial dimensions: Islamic scholarship and pedagogical competence. The curriculum is structured to provide an in-depth understanding of Islamic teachings while simultaneously training students to implement effective teaching methods in Madrasah Ibtidaiyah settings (Zulfa & Kurniasih, 2017).

The teaching methods adopted by PGMI UNUGHA Cilacap extend beyond conventional information delivery. Committed to fostering teachers capable of creating engaging and contextual learning environments, PGMI integrates Contextual Teaching and Learning (CTL) methods into the educational process.

The facilities provided by the program reflect PGMI UNUGHA Cilacap's commitment to supporting students' academic and professional development. The Education Laboratory is equipped with modern tools, and the library offers a diverse range of resources on Islamic literature and education (W. N. Azizah, personal communication, 2023).

Additionally, PGMI UNUGHA Cilacap has established strong collaborative networks with educational institutions, madrasahs, and other relevant stakeholders. These partnerships create opportunities for students to gain practical experience through internships and broaden their horizons through various self-development activities.

As part of its holistic approach, the Madrasah Ibtidaiyah Teacher Education Program at UNUGHA Cilacap empowers students to develop character, leadership, and interpersonal skills. Through various extracurricular and social activities, students are encouraged to become individuals who are not only academically competent but also possess integrity and contribute positively to society.

With a strong commitment to diversity and Islamic values, PGMI UNUGHA Cilacap not only produces academically proficient MI teachers but also individuals imbued with religious and moral values. This program serves as a platform for prospective teachers to grow and thrive, ready to face the complex challenges in the field of madrasah education (Alhana, 2023).

Elementary Science Course for Madrasah Ibtidaiyah at UNUGHA Cilacap

The Elementary Science (Ilmu Pengetahuan Alam/IPA) course taught in the Primary School Teacher Education Program (Pendidikan Guru Madrasah Ibtidaiyah/PGMI) at Nahdlatul Ulama University (UNUGHA) Cilacap serves as a critical foundation in shaping the academic and scientific competencies of future Madrasah Ibtidaiyah (MI) teachers (Azizah, 2017). The objectives of the Elementary Science course in the MI program at UNUGHA are designed not only to impart fundamental scientific concepts to students but also to integrate Islamic contexts as an integral component of the learning process. In an era of rapid advancements in science and technology, a basic understanding of science is crucial for prospective educators. However, what sets this program apart is its holistic approach, combining scientific principles with Islamic values to develop teachers who are not only academically competent but also possess a high level of spiritual awareness.

DOI: 10.24090/jimrf.v13i2.12128

This approach is essential as it reflects a comprehensive educational paradigm where science and religion are not seen as separate entities but as complementary components. The course is designed to equip students with the ability to teach science using contextual and relevant methods, utilizing the Contextual Teaching and Learning (CTL) approach. In this context, Islamic values are used to strengthen scientific understanding and instill ethics and morals based on Islamic teachings. For instance, discussions on the universe and living beings are not only explained from a scientific perspective but also linked to relevant Qur'anic verses, enriching the learning experience and fostering awe and gratitude towards Allah's creation. Through this approach, it is hoped that future teachers will become agents of change capable of educating the younger generation with strong scientific knowledge and a solid moral foundation.

Assessment of the Elementary Science course outcomes is conducted through various methods, including cognitive, affective, and psychomotor evaluations. Cognitive assessment involves written and oral tests that measure conceptual understanding, while affective assessment includes observing students' attitudes and interests in learning science. Psychomotor assessment, on the other hand, involves direct practice in designing and implementing project-based or experimental learning. The results of these evaluations provide a comprehensive overview of the extent to which learning outcomes have been achieved and serve as a basis for developing a more effective and responsive curriculum to the educational needs of Madrasah Ibtidaiyah.

Additionally, one of the main focuses of this course is to ensure that future MI teachers have a deep understanding of fundamental science concepts relevant to the MI curriculum. Through a contextual approach, teaching materials are presented by considering students' daily lives, making it easier for them to relate theory to practical realities (W. N. Azizah, personal communication, 2023). In its implementation, the course utilizes various teaching methods, including group discussions, laboratory experiments, and educational technology. Through active interaction and the application of concepts in practical activities, students in the PGMI program at UNUGHA Cilacap gain not only theoretical understanding but also firsthand experience in teaching these concepts in an MI environment (Alhana, 2023).

The Islamic aspect is also a significant focus in this course. Instructors emphasize the importance of integrating Islamic values into every aspect of elementary science learning. This includes not only ethics in exploring natural sciences but also the application of scientific concepts in line with Islamic principles. Furthermore, the course pays special attention to developing the pedagogical skills of future teachers. Students are encouraged to design contextual lesson plans, identify students' potential, and create learning situations that support the development of scientific attitudes.

Challenges in this course are also acknowledged, including the complexity of the material and adjustments to the diverse abilities of MI students. Therefore, instructors act as facilitators who support students in overcoming these obstacles and developing effective teaching strategies.

DOI: 10.24090/jimrf.v13i2.12128

Overall, the Elementary Science course for Madrasah Ibtidaiyah at the PGMI program of UNUGHA Cilacap reflects a commitment to providing holistic education, combining academic, Islamic, and pedagogical aspects. Through a contextual and practice-oriented approach, this course lays a strong foundation in equipping future MI teachers with the knowledge and skills needed to succeed in educating the next generation.

Implementation of Innovative Teaching in the Elementary Natural Sciences Course for Islamic Elementary School Teachers Using the Contextual Teaching and Learning Method at UNUGHA Cilacap

Curriculum Design

In addressing the increasingly dynamic challenges in education, lecturers of the Elementary Natural Sciences (IPA Dasar) course at the Nahdlatul Ulama University (UNUGHA) in Cilacap have recognized the need to enhance teaching methods by incorporating students' everyday life contexts (W. N. Azizah, personal communication, 2023). Consequently, the lecturers decided to design a curriculum that integrates the Contextual Teaching and Learning (CTL) method. The primary objective of this curriculum design is to create more contextual and relevant learning experiences for students, focusing on the comprehension of fundamental natural science concepts that align with the daily lives of Islamic elementary school (MI) students (Alhana, 2023).

In an interview, the Head of the PGMI Study Program at UNUGHA Cilacap stated: "*In designing the MI Basic Science curriculum, we adopt a comprehensive approach. The first step we take is a Student Needs Analysis. We understand the characteristics of PGMI students and tailor the curriculum to suit their needs and developmental stages. We then proceed with Mapping Educational Standards and the National Curriculum. By ensuring our curriculum aligns with national standards, we can guarantee the quality of education provided to students. Key concepts are identified by considering the essence of MI Basic Science material and the students' need to grasp these concepts. Subsequently, we design contextual learning activities to provide an in-depth learning experience. Teaching materials are adjusted by breaking down key concepts into content relevant to the students' daily lives. We ensure that the teaching materials are not only informative but also capable of sparking students' interest and engagement. Learning resources are selected with consideration of the diversity of materials and teaching methods. We ensure that the learning resources support student success and encompass various aspects of intelligence. The development of learning evaluations is conducted by detailing various forms of assessment that cover cognitive, affective, and psychomotor aspects. We aim to ensure that the evaluations reflect a holistic understanding of the students' grasp of MI Basic Science concepts (W. N. Azizah, personal communication, 2023).*"

From the interviews conducted, it was found that curriculum design involves several steps, including the following: *First*, Student Needs Analysis. Conducting a needs analysis is a crucial initial step in designing effective and contextual learning. According to Brown (1995), needs analysis is a systematic process to identify and prioritize the educational needs of learners, guiding the development of more relevant and responsive curricula and teaching methods (J. D. Brown, 1995). In the context of the Madrasah Ibtidaiyah Teacher Education Program (PGMI) at UNUGHA Cilacap, lecturers conduct a needs analysis by identifying students' initial understanding, interests, and life contexts. The information gathered from this analysis forms the basis for determining the most relevant and beneficial instructional materials for students.

This approach aligns with constructivist theories proposed by Piaget (1977) and Vygotsky (1978), which emphasize the importance of considering learners' backgrounds and learning experiences in the educational process (Easley, 1978; Piaget, 1977; Vygotsky & Cole, 1978). Piaget emphasized that effective learning occurs when instructional materials are tailored to students' cognitive development levels, while Vygotsky highlighted the significance of social and cultural contexts in learning. By understanding students' needs and life contexts, lecturers can design more meaningful and relevant learning experiences that not only enhance conceptual understanding but also motivate students to actively engage in the learning process.

Moreover, the andragogical theory developed by Knowles (1980) is also pertinent in this context. Knowles argued that adults learn most effectively when their needs and interests are recognized and valued (Knowles, 1988). For PGMI UNUGHA Cilacap students, who are predominantly future teachers, integrating needs analysis into curriculum design helps create a responsive and supportive learning environment, ultimately enhancing their competence and readiness to teach in madrasah ibtidaiyah.

Therefore, the needs analysis conducted by PGMI UNUGHA Cilacap lecturers not only serves as an initial step in designing relevant instructional materials but also represents an effort to apply educational theories that have proven effective in improving the quality of learning.

Second, Mapping of Educational Standards and the National Curriculum. Mapping educational standards and the national curriculum is a crucial step in ensuring the alignment between academic programs and the academic requirements set by educational authorities. Faculty members at PGMI UNUGHA Cilacap understand the importance of this mapping, ensuring that their curriculum design adheres to the established standards. According to Tyler (1949), a pioneer in curriculum theory, education should begin with clear objectives that guide the entire teaching and learning process. Mapping educational standards and the national curriculum is an effort to ensure that the desired educational objectives are achieved (Tyler, 2013).

Moreover, proper curriculum mapping allows for the integration of innovative teaching methods such as Contextual Teaching and Learning (CTL) without neglecting national standards. Anderson and Krathwohl (2001), in their revision of Bloom's taxonomy, emphasize the importance of aligning learning objectives with existing standards to ensure systematic and measurable cognitive development in students (Anderson et al., 2000). By understanding the educational standards and national curriculum, faculty at PGMI UNUGHA Cilacap can design a curriculum that is not only contextually relevant but also compliant with the national academic standards set by the Indonesian Ministry of Education and Culture.

Furthermore, a deep understanding of the standards and national curriculum enables faculty to implement best practices in education. This aligns with the view of Darling-Hammond et al. (2005), who state that the quality of education is significantly influenced by educators' ability to understand and implement applicable educational

standards (Darling-Hammond et al., 2007). Therefore, faculty at PGMI UNUGHA Cilacap who master educational standards and the national curriculum can ensure that their educational programs not only meet formal requirements but also prepare students to become competent educators who are responsive to contemporary needs.

Third, Identification of Key Concepts. The key concepts in the Basic Natural Sciences course for Madrasah Ibtidaiyah (MI) are identified. Instructors select these concepts based on their relevance to everyday life and their potential for integration with the Contextual Teaching and Learning (CTL) method. One example of its application is the concept of ecosystems, where the instructor connects the material to the students' surrounding environment. Students are asked to conduct observations in a school garden or park, identifying various ecosystem components such as plants, animals, water, and soil, as well as the interactions among these components. The discussion then proceeds to emphasize the importance of maintaining ecosystem balance, based on Qur'anic verses that highlight humans' role as stewards of the earth.

Another example is the concept of the water cycle, which is linked to the students' daily lives, such as the process of rainfall and the role of water in human life. Students perform simple experiments demonstrating evaporation, condensation, and precipitation using basic tools. The instructor then relates these phenomena to Islamic teachings about water as a divine gift that must be preserved and used wisely, thereby enriching students' understanding of the water cycle and the importance of water conservation.

The concept of energy is also taught by linking it to household energy use. Students identify various energy sources used at home and undertake small projects to measure energy consumption and explore ways to conserve energy. The discussion continues by connecting energy use with Islamic teachings on avoiding wastefulness and the need to live efficiently and frugally. Through this approach, instructors not only teach theoretical concepts of natural sciences but also make the material relevant to the real lives of MI students, reinforcing moral and spiritual values in accordance with Islamic teachings.

Fourth, the design of contextual learning activities by the lecturers of PGMI UNUGHA Cilacap encompasses case studies, field explorations, and simulations that are relevant to the students' lives. This approach aligns with the contextual learning theory posited by educational experts such as John Dewey, who emphasized the importance of direct experience and practical application in the learning process. Dewey argued that effective learning occurs when students can connect new knowledge with their own experiences (Dewey, 1986).

Moreover, the constructivist theory pioneered by Jean Piaget also supports this approach. Piaget asserted that learning is an active process in which students construct new knowledge based on their existing knowledge and experiences (Piaget, 1952). By designing contextual learning activities, lecturers not only help students grasp fundamental science concepts more deeply but also enable them to apply this knowledge in real-life situations.

Furthermore, the Contextual Teaching and Learning (CTL) approach developed by Johnson (2002) emphasizes that meaningful learning happens when students learn within the context of experiences relevant to their lives. Johnson highlighted that contextual learning helps students relate the material they learn to real-world situations, thereby enhancing their engagement and understanding. In this context, the design of contextual learning activities by PGMI UNUGHA Cilacap lecturers reflects the effective implementation of CTL principles.

Thus, through the design of contextual learning activities such as case studies, field explorations, and simulations, the lecturers of PGMI UNUGHA Cilacap not only apply the educational theories of experts but also ensure that the learning process becomes more relevant and meaningful for students. This approach is expected to enhance students' understanding, interest, and engagement in learning fundamental science.

Fifth, Adjustment of Teaching Materials. The teaching materials are reorganized by the lecturers at PGMI UNUGHA Cilacap to better align with the context of MI students' lives. Lecturers adjust the language, illustrations, and examples to more closely reflect the realities faced by students. This adjustment is consistent with the constructivist learning theories proposed by Jean Piaget and Lev Vygotsky, which emphasize the importance of social and cultural context in the learning process. Piaget posited that students construct knowledge through active interaction with their environment (Piaget, 1952). In this regard, adjusting teaching materials to reflect students' everyday realities helps them understand and internalize the concepts being taught.

Moreover, Vygotsky highlighted the significance of language and social interaction in learning (Vygotsky & Cole, 1978). By tailoring the language and illustrations used in teaching materials, lecturers can make concepts more accessible and comprehensible for students. This approach also supports Vygotsky's theory of the Zone of Proximal Development (ZPD), where learning is most effective when students are assisted in understanding concepts that are slightly beyond their current grasp through appropriate scaffolding.

This adjustment is further endorsed by the theory of Contextual Teaching and Learning (CTL) developed by Johnson, which asserts that contextual learning helps students connect academic content with their real-life contexts, thus making learning more meaningful and relevant (Johnson, 2002). By adapting teaching materials to suit the context of MI students' lives, lecturers not only facilitate better understanding but also enhance student motivation and engagement in the learning process.

Sixth, Integration of Active Learning Methods. Lecturers at PGMI UNUGHA Cilacap incorporate active learning methods, such as group discussions, problem-based projects, and laboratory experiments, to maximize student participation and reinforce conceptual understanding. These active learning methods are grounded in constructivist theories proposed by Piaget and Vygotsky, which assert that students construct their knowledge through active interaction with their environment and others. Piaget emphasized the importance of

direct experience in learning, while Vygotsky highlighted the role of social interaction and scaffolding in cognitive development.

For instance, group discussions allow students to share their understandings and perspectives, thereby creating opportunities to learn from their peers and construct new knowledge. Problem-based projects, as advocated by educational theorist John Dewey, encourage students to engage in real-world problem solving, which not only enhances critical thinking skills but also makes learning more relevant and meaningful. Laboratory experiments, often utilized in active learning approaches, enable students to test their hypotheses and observe firsthand the application of scientific concepts, aligning with David Kolb's views on experiential learning, where effective learning occurs through concrete experience and active reflection.

The integration of active learning methods also aligns with Malcolm Knowles' principles of andragogy, which emphasize that adult learners are more motivated when they can see the immediate relevance of what they are learning. Thus, the implementation of active learning methods at PGMI UNUGHA Cilacap not only maximizes student participation but also deepens conceptual understanding, creating a dynamic and interactive learning environment.

Seventh, Selection of Learning Resources. The selection of learning resources is a crucial component in the effective implementation of Contextual Teaching and Learning (CTL), as emphasized by various educational experts. Faculty members at PGMI UNUGHA Cilacap meticulously choose learning resources that support the contextualization of teaching materials, including textbooks, articles, and digital resources relevant to students' lives. According to Johnson, CTL focuses on connecting academic content with everyday life contexts, making the appropriate selection of learning resources essential for creating meaningful learning experiences (Johnson, 2002).

Additionally, Merrill, in his theory of First Principles of Instruction, emphasizes that effective learning should be centered around real-world tasks or problems that are relevant to students (Merrill, 2002). Therefore, by selecting learning resources pertinent to the context of MI students' lives, instructors not only adhere to the fundamental principles of CTL but also implement the problem-based learning approach advocated by Merrill. This enables students to relate academic material to real-life situations they encounter, thereby enhancing their understanding and application of scientific concepts.

John Dewey, also argued that education should be based on direct experiences relevant to students' lives (Dewey, 1986). The selection of learning resources that support the contextualization of teaching materials at PGMI UNUGHA Cilacap aligns with Dewey's views on the importance of real-life experiences in the educational process. Thus, the approach used by PGMI instructors not only complies with contemporary educational theories but is also rooted in classical pedagogical principles that emphasize relevance and contextuality in learning.

Eighth, Designing Learning Evaluations. Designing learning evaluations is an essential component of an effective educational process. The lecturers at PGMI UNUGHA

Cilacap develop evaluation instruments that encompass various forms of assessment, such as exams, project assignments, and performance assessments, to measure students' understanding and application of concepts. This approach aligns with the educational evaluation theory proposed by Bloom, Hastings, and Madaus (1971), which emphasizes the importance of employing diverse forms of assessment to gain a comprehensive understanding of students' abilities. Bloom et al. highlight that assessments should not only focus on cognitive abilities but also encompass affective and psychomotor domains.

Furthermore, the theory of authentic assessment advanced by Wiggins supports the use of project assignments and performance assessments as integral components of learning evaluations (Wiggins, 1998). Wiggins argues that authentic assessments, which evaluate students based on tasks reflecting real-world challenges, provide more accurate information about students' abilities to apply their knowledge in relevant contexts. This approach is also consistent with the principles of Contextual Teaching and Learning (CTL) implemented at UNUGHA Cilacap, where learning and assessments are designed to help students connect theory with practice in their daily lives.

By designing diverse evaluation instruments, the lecturers at PGMI UNUGHA Cilacap ensure that assessments encompass various aspects of student competence while also fostering the development of broader skills, including critical, creative, and applied thinking. This approach is consistent with the views of Linn and Gronlund, who state that variation in assessment methods can enhance the validity and reliability of assessment results, providing a more holistic view of student achievement (Miller et al., 2008). Therefore, the comprehensive and diverse design of learning evaluations is a crucial step in ensuring that learning objectives are effectively achieved and that students are prepared to face real-world challenges.

The implementation of the designed curriculum is expected to have a positive impact on the learning of Basic Science at Madrasah Ibtidaiyah (MI) in UNUGHA Cilacap, where students can demonstrate improved understanding of concepts, interest, and active engagement in the learning process. Lecturers also report increased motivation and participation among students in the classroom (W. N. Azizah, personal communication, 2023).

Training for Instructors of Basic Science Courses for Islamic Elementary Schools (MI)

The Elementary School Teacher Education Program (PGMI) at Universitas Nahdlatul Ulama (UNUGHA) Cilacap recognizes the necessity of enhancing faculty competency in applying the Contextual Teaching and Learning (CTL) Method. Training sessions were conducted with a focus on contextualization techniques, the assignment of context-based tasks, and the utilization of active learning methods in the Basic Natural Sciences (IPA) courses for Madrasah Ibtidaiyah. The primary objective of this training is to elevate the lecturers' capabilities in designing and implementing contextual, relevant, and engaging instruction that actively involves students (Alhana, 2023). In an interview, the Head of the PGMI Program at UNUGHA Cilacap stated:

"The steps of this training program are designed to ensure the effective use of the Contextual Teaching and Learning (CTL) method in the Basic Science courses for MI. The first step we undertook is a Faculty Needs Analysis, where we identified the instructors' needs regarding their understanding of the CTL concept. Following the needs identification, we proceeded with Training Planning, focusing on the comprehension of CTL theories and concepts. We ensured that the faculty members grasp the fundamentals of CTL and how to integrate it into Basic Science courses for MI. The third step involves the CTL Theory and Concept Session, where instructors gain a deeper understanding of the CTL framework. We provide structured guides and training materials to facilitate the comprehension of these concepts. The next step is Contextualization Techniques, where instructors receive guidance on how to relate course material to students' everyday life contexts. Subsequently, we conduct Context-Based Assignment Training to ensure that instructors can design assignments relevant to real-life contexts. We continue with Active Learning Methods, where instructors are taught techniques to engage students through discussions, simulations, and other interactive activities. Finally, the Implementation of CTL in Basic Science Courses for MI marks the classroom application phase (W. N. Azizah, personal communication, 2023)."

From the conducted interviews, the steps for the faculty training were identified as follows: *First*, the Faculty Needs Analysis at PGMI UNUGHA Cilacap identified their requirements regarding the implementation of CTL through surveys and internal discussions. This needs analysis helped to detail the aspects that needed emphasis in the training program. According to Brown (2002), a comprehensive needs analysis is crucial for designing effective training programs, ensuring that the training content is aligned with the specific needs of the participants (J. Brown, 2002).

Second, the Training Planning phase involved designing a program that encompassed the theory of CTL, contextualization techniques, context-based assignment provision, and active learning methods. The training schedule was arranged to ensure the participation of all lecturers. This aligns with the principles outlined by Gagné and Medsker, who emphasized that well-planned instructional design is critical for successful training outcomes (Gagné, 1985).

Third, the Theory and Concept Sessions on CTL provided a deep understanding of its principles. Lecturers were introduced to the concept of contextualization and how to relate teaching materials to the realities of MI students. Bruner (1960) argued that understanding the underlying principles of a teaching method is essential for its effective implementation, highlighting the importance of theoretical grounding in education (Bruner, 1977).

Fourth, Contextualization Techniques were developed through practical workshops where lecturers learned to design learning scenarios that reflect the everyday lives of MI students. Group discussions and reflections provided constructive feedback. Vygotsky's (1978) theory of social constructivism supports this approach, suggesting that social interaction plays a fundamental role in the development of cognition (Vygotsky & Cole, 1978).

DOI: 10.24090/jimrf.v13i2.12128

Fifth, the Context-Based Assignment Provision session focused on designing and assessing assignments that align with students' lives and support concept understanding. Practical sessions involved lecturers directly in designing context-based assignments. This is supported by the work of Wiggins and McTighe (2005), who emphasized the importance of authentic assessment in promoting meaningful learning experiences (Wiggins & McTighe, 2005).

Sixth, the Active Learning Methods training included demonstrations and simulations of various active learning methods, such as group discussions, role-playing, and practical simulations. Lecturers had the opportunity to act as students in these sessions. Prince (2004) highlighted that active learning strategies significantly enhance student engagement and learning outcomes, validating the inclusion of these methods in the training (Prince, 2004).

Finally, the Implementation of CTL in MI Basic Science Courses involved lecturers applying CTL concepts in their teaching. Supervision and mentoring were provided to help them overcome challenges and improve their approaches. This reflects Schön's model of reflective practice, which underscores the importance of continuous reflection and improvement in professional development (Schon, 1984).

The comprehensive faculty training at PGMI UNUGHA Cilacap, focusing on the implementation of CTL, is expected to significantly enhance the quality of teaching. Lecturers become more prepared and confident in creating relevant and participatory learning experiences for students, leading to a positive impact on their understanding and interest in MI Basic Science (Alhana, 2023). This holistic approach to professional development aligns with best practices in educational theory and is poised to create meaningful improvements in educational outcomes.

Implementation of the Contextual Teaching and Learning (CTL) Method in Basic Natural Sciences Course

In an effort to enhance the quality of Basic Natural Sciences education at Madrasah Ibtidaiyah (MI), the Program of Elementary Teacher Education at Universitas Nahdlatul Ulama (UNUGHA) Cilacap has decided to implement the Contextual Teaching and Learning (CTL) method. This course aims to create a more relevant and contextual learning experience for students.

In an interview, the Head of the Elementary Teacher Education Program at UNUGHA Cilacap stated that:

"The implementation steps of CTL-based instruction for the Basic Natural Sciences course at PGMI UNUGHA Cilacap encompass several stages. First, we begin with meticulous lesson planning, which includes identifying the everyday life contexts of the students and adjusting the learning materials accordingly. We then employ contextualization techniques, linking the learning content to the students' real-life situations. The use of contextual teaching materials is crucial for making learning more relevant and engaging. Context-based assignments are also given to students to apply the concepts they have learned in their daily lives. Furthermore, we actively encourage group discussions to facilitate the exchange of ideas and understanding among students. Field practices are an integral part of the learning process, allowing students to apply their knowledge in practical experiences. Lastly, we leverage technology as a learning aid to enhance interactivity and accessibility. Overall, the student response has been very positive. They are more engaged in the learning process and see

a direct relevance between the taught materials and their daily lives. There has been a notable increase in students' understanding and interest in the Basic Natural Sciences course. I recommend that the implementation of CTL continue to be strengthened and developed through training and workshops for lecturers. Additionally, enhancing technological infrastructure can further support the effectiveness of the learning process. Most importantly, the active involvement of lecturers in supporting students throughout the learning process is key to the success of this method (W. N. Azizah, personal communication, 2023)."

Based on interviews and observations, the implementation of the Contextual Teaching and Learning (CTL) method in the basic science course for Madrasah Ibtidaiyah (MI) at the PGMI UNUGHA Cilacap program can be outlined through several key strategies. *Firstly*, in lesson planning, instructors design lesson plans that align with the needs of MI students and the characteristics of the national curriculum, a practice supported by Tyler's emphasis on the importance of clear educational objectives. In addition, instructors select fundamental science concepts relevant to students' everyday lives, which aligns with Dewey's advocacy for experiential learning (Dewey, 1986; Tyler, 2013).

Secondly, instructors develop techniques to contextualize basic science concepts within students' daily experiences. This approach is supported by Vygotsky's theory of social constructivism, which emphasizes the importance of context and social interactions in learning (Vygotsky & Cole, 1978). By relating teaching materials to real-life situations and cases that are easily understood by MI students, instructors ensure that learning is meaningful and relevant.

Thirdly, the use of contextual teaching materials, such as case studies, stories, and videos, aligns with Bruner's theory of discovery learning, which highlights the importance of engaging students with materials that stimulate interest and provoke inquiry (Bruner, 1977). These materials are carefully designed to connect with students' experiences, thereby enhancing their engagement and understanding.

Fourthly, context-based assignments that require students to apply basic science concepts in their daily lives encourage critical thinking and creativity, resonating with Bloom's taxonomy (Anderson et al., 2000), which underscores the importance of higher-order thinking skills in education. These assignments are crafted to challenge students to think critically and solve problems creatively.

Fifthly, group discussions are employed as an active learning method to explore specific concepts, a practice that aligns with Johnson and Johnson's cooperative learning theory, which emphasizes the benefits of collaborative learning in enhancing understanding and problem-solving abilities (Johnson, 2002). These discussions involve students in formulating solutions to problems related to basic science, fostering a deeper understanding through peer interaction.

Sixthly, field practices such as experiments, nature observations, and visits to relevant sites provide direct experiential learning opportunities, which Kolb identified as crucial for effective learning through his experiential learning theory (Kolb, 1983). These activities enhance students' understanding by allowing them to engage with the material firsthand.

Lastly, the integration of technology into the learning process, utilizing multimedia, simulations, or online platforms to support remote learning, aligns with Mayer's cognitive theory of multimedia learning, which posits that the integration of multimedia can enhance learning by providing diverse representations of information (Anderson et al., 2000). This technological integration enriches the learning experience and supports diverse learning styles.

Overall, the implementation of the CTL method in the basic science course at PGMI UNUGHA Cilacap successfully creates a more contextual and relevant learning experience for students. This approach not only enhances students' conceptual understanding but also enriches their interest and participation in the learning process, equipping them to teach MI students more effectively and inspirationally in the future.

Learning Evaluation and Feedback

Learning evaluation and feedback are crucial aspects in enhancing the quality of the Basic Natural Sciences (IPA) course for Madrasah Ibtidaiyah (MI) through the implementation of the Contextual Teaching and Learning (CTL) method in the Teacher Education Program for Madrasah Ibtidaiyah (PGMI) at UNUGHA Cilacap. In this context, evaluation and feedback are employed as tools to understand the effectiveness of the teaching methods, student responses, and as a foundation for continuous improvement. In an interview, the Head of the PGMI Program at UNUGHA Cilacap stated:

"The evaluation of Basic Science learning using the CTL method at PGMI UNUGHA Cilacap is conducted through several stages. Firstly, we implement both summative and formative evaluations to ensure a comprehensive understanding of the students' concepts. Student satisfaction surveys help us gauge perceptions and satisfaction levels regarding the learning process. Joint reflections with students serve as a forum to directly hear their experiences and to improve the learning process based on their feedback. The evaluation results are analyzed holistically. We assess learning achievements, student responses, and the effectiveness of the CTL method. During evaluation and planning meetings, we establish improvement and enhancement steps to ensure better learning outcomes in the future (W. N. Azizah, personal communication, 2023)."

In the context of evaluating the implementation of innovative teaching methods for the Basic Science Course (IPA Dasar MI) at Universitas Nahdlatul Ulama (UNUGHA) Cilacap, lecturers employ a dual approach comprising formative and summative evaluations. Formative assessments, including periodic exams, context-based assignments, and group discussions, allow lecturers to continuously gauge students' understanding, aligning with Bloom's Taxonomy, which emphasizes the need for regular feedback to enhance learning outcomes (Anderson et al., 2000). These formative evaluations facilitate the adaptation of subsequent teaching sessions to better meet student needs. Summative assessments, such as end-of-semester exams, provide a comprehensive overview of students' overall achievement of learning objectives, reinforcing the importance of measuring cumulative knowledge (Tyler, 2013).

Evaluation techniques involve classroom observation and project-based assessments. Classroom observations, where lecturers monitor class dynamics, student interactions, and the application of the Contextual

Teaching and Learning (CTL) method, offer direct insights into teaching effectiveness and student engagement, echoing the principles of reflective teaching practices advocated by Schön (Schon, 1984). Project-based assessments evaluate students' ability to apply basic science concepts in real-life contexts, promoting practical and meaningful learning experiences as endorsed by Dewey's experiential learning theory (Dewey, 1986).

Student feedback is gathered through satisfaction surveys and joint reflection sessions. Satisfaction surveys solicit feedback on aspects such as material clarity, teaching method usefulness, and overall satisfaction, which aligns with the continuous improvement model proposed by Deming (Deming, 2000). Joint reflection sessions provide a platform for students to share their learning experiences and offer input, fostering a collaborative learning environment as highlighted by Vygotsky's social development theory (Vygotsky & Cole, 1978).

Improvement and development are addressed through analysis of evaluation results and evaluation and planning meetings. Analyzing evaluation results enables lecturers to identify success areas and challenges in implementing CTL, providing a data-driven basis for decision-making in line with action research principles (Lewin, 1946). Evaluation and planning meetings involve in-depth reflections on effective teaching methods and strategies for improvement, ensuring that the curriculum remains responsive to student needs and contemporary educational demands (Darling-Hammond et al., 2007)

Feedback mechanisms enhance teaching methods to align with students' preferences and needs, thereby increasing participation and motivation. This process supports the continuous improvement of the learning experience and the optimal implementation of CTL, ensuring the relevance and effectiveness of the Basic Science Course in the PGMI program at UNUGHA Cilacap (W. N. Azizah, personal communication, 2023). Through this comprehensive evaluation framework, the program demonstrates a commitment to aligning education with student needs and the surrounding social context, ultimately fostering an environment conducive to holistic educational development.

CONCLUSION

This study demonstrates that the implementation of innovative teaching methods in the Basic Natural Sciences course for Madrasah Ibtidaiyah (IPA Dasar MI) using the Contextual Teaching and Learning (CTL) method at Universitas Nahdlatul Ulama (UNUGHA) Cilacap has yielded a variety of positive impacts. The CTL method consistently enhances students' understanding of basic science concepts by contextualizing the material, utilizing context-based assignments, and engaging in active learning that connects theory to everyday life. Additionally, this method fosters active student participation by creating a dynamic and interactive learning environment through group discussions, context-based assignments, and practical activities. The contextualization of teaching materials with the daily lives of MI students in Cilacap increases the relevance of the learning process, making science concepts more tangible and applicable for the students.

Intensive training related to the implementation of CTL also enhances the pedagogical skills of lecturers, enabling them to design instruction that is responsive to students' needs, integrates Islamic aspects, and bridges basic science concepts with local contexts. This study also identifies challenges such as the complexity of the material and adaptation to the diverse abilities of students, which are recognized as opportunities for continuous improvement through more differentiated teaching strategies. The findings of this study have significant implications for MI education in Indonesia, demonstrating that the CTL method not only improves conceptual understanding but also fosters scientific attitudes, creativity, and character development in line with Islamic values. Thus, the implementation of innovative teaching methods in the Basic Natural Sciences course with the CTL method at UNUGHA Cilacap has successfully achieved academic goals and demonstrated a commitment to aligning education with students' needs and their social context.

This study has several limitations that should be considered. First, the research involved only third-semester students of the Madrasah Ibtidaiyah Teacher Education program at UNUGHA Cilacap, who were selected purposively. This limits the generalizability of the findings to students in other semesters or at different institutions with varying curricula and learning environments. Additionally, the specific context of the study at UNUGHA Cilacap, with its unique cultural characteristics, resources, and learning environment, also affects the results and reduces the applicability of the findings to other educational settings.

Another limitation stems from the qualitative approach used, which, while providing deep understanding, does not offer quantifiable data that can be widely measured. The relatively short duration of the study might not be sufficient to capture long-term changes in students' understanding and attitudes towards learning basic sciences with the CTL method. Furthermore, resource constraints such as time, effort, and funding impact the scope and depth of the study, including the number of observations or interviews that could be conducted. Finally, data interpretation in qualitative research heavily relies on the subjectivity of the researcher, and despite measures like triangulation and member checking to reduce bias, there remains a possibility of unintended bias in data analysis and interpretation. By acknowledging these limitations, it is hoped that this study can serve as a foundation for further research that can address these constraints and broaden the understanding of CTL method implementation in basic science education across various educational contexts.

REFERENCES

Agustiningsih, W., Luthfiyah, L., & Ruslan, R. (2024). Analisis Implementasi Model Contextual Teaching and Learning (CTL) pada Mata Pelajaran Pendidikan Agama Islam. *Jurnal Pendidikan Dan Pembelajaran Indonesia (JPPI)*, *4*, 1–9. https://doi.org/10.53299/jppi.v4i1.406

Alhana, A. N. (2023). *Observasi di Universitas Nahdlatul Ulama Al Ghazali (UNUGHA) Cilacap*.

Anderson, L., Krathwohl, D., Airasian, P., Cruikshank, K., Mayer, R., Pintrich, P., Raths, J., & Wittrock, M. (2000). *Taxonomy for Learning, Teaching, and Assessing, A: A Revision of Bloom's Taxonomy of Educational Objectives, Abridged Edition* (1st edition). Pearson.

Azizah, W. N. (2017). PENGEMBANGAN MODUL PRAKTIKUM PEMBELAJARAN IPA (SAINS) UNTUK MATA KULIAH PILIHAN di PROGRAM STUDI PENDIDIKAN GURU MADRASAH IBTIDAIYAH (PGMI) FAKULTAS TARBIYAH, INSTITUT AGAMA ISLAM IMAM GHOZALI (IAIIG) CILACAP 2016. *Jurnal Tawadhu*, *1*(2), Article 2. https://jurnal.unugha.ac.id/index.php/twd/article/view/269

Azizah, W. N. (2023). *Wawancara dengan Wida Nurul Azizah (Ketua Program Studi Pendidikan Guru Madrasah Ibtidayah UNUGHA Cilacap)* [Personal communication].

Brown, J. (2002). Training Needs Assessment: A Must for Developing an Effective Training Program. *Public Personnel Management*, *31*, 569–578. https://doi.org/10.1177/009102600203100412

Brown, J. D. (1995). *The Elements of Language Curriculum: A Systematic Approach to Program Development*. Heinle & Heinle.

Bruner, J. (1977). *The Process of Education: Revised Edition*. Harvard University Press.

Darling-Hammond, L., Bransford, J., LePage, P., Hammerness, K., & Duffy, H. (Eds.). (2007). *Preparing Teachers for a Changing World: What Teachers Should Learn and Be Able to Do* (1st edition). Jossey-Bass.

Deming, W. E. (2000). *Out of the Crisis* (Reprint edition). The MIT Press.

Dewey, J. (1986). Experience and Education. *The Educational Forum*. https://doi.org/10.1080/00131728609335764

Easley, J. A. (1978). Book Reviews: Jean Piaget, The Development of Thought: Equilibration of Cognitive Structures. (Translation by Arnold Rosin of Volume 33 of the Études d'Épistémologie Génétique) New York: The Viking Press, 1977. 213 pp., $12.50. *Educational Researcher*, *7*(11), 18–19. https://doi.org/10.3102/0013189X007011018

Gagné, R. M. (1985). *The Conditions of Learning and Theory of Instruction*. Holt, Rinehart and Winston.

Hasudungan, A. N. (2022). Pembelajaran Contextual Teaching Learning (CTL) Pada Masa Pandemi COVID-19: Sebuah Tinjauan. *Jurnal DinamikA*, *3*(2), Article 2. https://doi.org/10.18326/dinamika.v3i2.112-126

Hidayat, T., & Syahidin, S. (2019). INOVASI PEMBELAJARAN PENDIDIKAN AGAMA ISLAM MELALUI MODEL CONTEXTUAL TEACHING AND LEARNING DALAM MENINGKATKAN TARAF BERPIKIR PESERTA DIDIK. *Jurnal Pendidikan Agama Islam*, *16*(2), Article 2. https://doi.org/10.14421/jpai.2019.162-01

Johnson, E. B. (2002). *Contextual Teaching and Learning: What It Is and Why It's Here to Stay*. Corwin Press.

Juhji, J. (2015). Pendekatan Saintifik dalam Pembelajaran IPA di Madrasah Ibtidaiyah. *Primary: Jurnal Keilmuan Dan Kependidikan Dasar*, *7*(1), Article 1. https://doi.org/10.32678/primary.v7i1.2976

Knowles, M. S. (1988). *The Modern Practice of Adult Education: From Pedagogy to Andragogy* (Revised edition). Cambridge Book Co.

Kolb, D. A. (1983). *Experiential Learning: Experience as the Source of Learning and Development* (1st edition). Prentice Hall.

Kurniasih, D. (2021). Implementasi Model Pembelajaran Contextual Teaching And Learning (CTL) Dalam Pelajaran IPA Di Sekolah Dasar. *Social, Humanities, and Educational Studies (SHEs): Conference Series*, *3*, 285. https://doi.org/10.20961/shes.v3i4.53345

Lewin, K. (1946). Action research and minority problems. *Journal of Social Issues*, *2, 4*, 34–46. https://doi.org/10.1111/j.1540-4560.1946.tb02295.x

Merrill, M. D. (2002). First principles of instruction. *Educational Technology Research and Development*, *50*(3), 43–59. https://doi.org/10.1007/BF02505024

Miller, M. D., Linn, R. L., & Gronlund, N. E. (2008). *Measurement and Assessment in Teaching* (10th edition). Pearson College Div.

Moleong, L. J. (2006). *Metode Penelitian Kualitatif*. PT. Remaja Rosdakarya.

Nadiroh, N. (2015). METODE PEMBELAJARAN IPA DI MI NEGERI SIKANCO KECAMATAN NUSAWUNGU KABUPATEN CILACAP TAHUN PELAJARAN 2014/2015. *Jurnal Penelitian Agama*, *16*, 93–105. https://doi.org/10.24090/jpa.v16i1.2015.pp93-105

Nofriani, N., & Yusnira, Y. (2019). PENINGKATAN HASIL BELAJAR IPA DENGAN PENDEKATAN CTL (CONTEXTUAL TEACHING AND LEARNING) SISWA SEKOLAH DASAR. *Jurnal Pendidikan Dan Konseling (JPDK)*, *1*, 38–47. https://doi.org/10.31004/jpdk.v1i1.339

Piaget, J. (1952). *The origins of intelligence in children* (p. 419). W W Norton & Co. https://doi.org/10.1037/11494-000

Piaget, J. (1977). *The Development of Thought: Equilibration of Cognitive Structures* (A. Rosin, Trans.; First Edition). Viking Press.

Prince, M. (2004). Does Active Learning Work? A Review of the Research. *Journal of Engineering Education*, *93*, 223–231. https://doi.org/10.1002/j.2168-9830.2004.tb00809.x

Rahmawati, T. (2018). PENERAPAN MODEL PEMBELAJARAN CTL UNTUK MENINGKATKAN HASIL BELAJAR SISWA SEKOLAH DASAR PADA MATA PELAJARAN IPA. *Jurnal Imiah Pendidikan Dan Pembelajaran*, *2*. https://doi.org/10.23887/jipp.v2i1.13765

Rosyiddin, A. A. Z., Johan, R. C., & Mulyadi, D. (2022). Inovasi Pembelajaran Sebagai Upaya Menyelesaikan Problematika Pendidikan Indonesia. *Inovasi Kurikulum*, *19*(1), Article 1. https://doi.org/10.17509/jik.v19i1.42679

Schon, D. A. (1984). *The Reflective Practitioner: How Professionals Think In Action* (1st edition). Basic Books.

Serroukh, S., & Serroukh, I. (2022). *Traditional teaching method Vs Modern teaching method Traditional teaching method Vs Modern teaching method The traditional way of teaching and learning*.

Sidiq, U. (2019). *Metode Penelitian Kualitatif di Bidang Pendidikan*. Nata Karya.

Sudarisman, S. (2013). IMPLEMENTASI PENDEKATAN KONTEKSTUAL DENGAN VARIASI METODE BERBASIS MASALAH UNTUK

MENINGKATKAN KUALITAS PEMBELAJARAN BIOLOGI. *Jurnal Pendidikan IPA Indonesia*, *2*(1), Article 1. https://doi.org/10.15294/jpii.v2i1.2506

Sugiyono. (2010). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, Dan R&D*. Alfabeta.

Sulthon, S. (2017). Pembelajaran IPA yang Efektif dan Menyenangkan bagi Siswa MI. *ELEMENTARY: Islamic Teacher Journal*, *4*(1), Article 1. https://doi.org/10.21043/elementary.v4i1.1969

Susiloningsih, W. (2016). Model Pembelajaran CTL (Contextual Teaching and Learning) dalam Meningkatkan Hasil Belajar Mahasiswa PGSD Pada MataKuliah Konsep IPS Dasar: *Pedagogia: Jurnal Pendidikan*, *5*(1), Article 1. https://doi.org/10.21070/pedagogia.v5i1.89

Tyler, R. W. (2013). *Basic Principles of Curriculum and Instruction* (P. S. Hlebowitsh, Ed.). University of Chicago Press. https://press.uchicago.edu/ucp/books/book/chicago/B/bo17239506.html

Utami, N. M. N. P., Wulandari, I. G. A. A., & Agustika, G. N. S. (2022). Model Pembelajaran Contextual Teaching and Learning (CTL) Berbantuan Media Benda Konkret Meningkatkan Pengetahuan IPAS Siswa. *Mimbar Pendidikan Indonesia*, *3*(3), Article 3. https://ejournal.undiksha.ac.id/index.php/JIPI2/article/view/62569

Verry, V., Haq, A., & Lasimin. (2023). ANALISIS KUALITAS LAYANAN ONLINE PUBLIC ACCESS CATALOG (OPAC) TERHADAP KEPUASAN PENGGUNA DI UNIVERSITAS NAHDLATUL ULAMA AL GHAZALI (UNUGHA) CILACAP MENGGUNAKAN METODE E-SERVQUAL. *JOINICS (Journal Of Informatics And Computer Sciences)*, *1*(1), Article 1. https://jurnal.unugha.ac.id/index.php/jnc/article/view/374

Vygotsky, L. S., & Cole, M. (1978). *Mind in Society: Development of Higher Psychological Processes*. Harvard University Press.

Wiggins, G. (1998). *Educative Assessment: Designing Assessments to Inform and Improve Student Performance* (1st edition). Jossey-Bass Publishers.

Wiggins, G., & McTighe, J. (2005). *Understanding By Design* (2nd Expanded edition). Assn. for Supervision & Curriculum Development.

Wijaya, Y. (2015). PENERAPAN PEMBELAJARAN CONTEXTUAL TEACHING AND LEARNING (CTL) DALAM MENINGKATKAN HASIL BELAJAR IPA PADA SISWA TUNARUNGU DI SLB B/C. *Modeling: Jurnal Program Studi PGMI*, *2*. https://doi.org/10.2345/jm.v2i1.739

Zulfa, U., & Kurniasih, N. (2017). EFEKTIVITAS STRATEGI PERCEPATAN PENYELESAIAN STUDI PROGRAM S1 FAKULTAS TARBIYAH IAIIG CILACAP. *Jurnal Tawadhu*, *1*(2), Article 2. https://jurnal.unugha.ac.id/index.php/twd/article/view/268