



Synergizing Islamic Religious Education and Scientific Learning in the 21st Century: A Systematic Review of Literature

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ABSTRAK

Dalam abad ke-21, evolusi metodologi pendidikan telah secara signifikan mengubah Pendidikan Agama Islam (PAI). Era ini menuntut siswa untuk memperoleh berbagai kompetensi yang penting untuk masa depan mereka, menempatkan PAI sebagai aspek krusial dalam mengurangi dampak negatif dari kemajuan sains yang pesat. Untuk berhasil menavigasi pendidikan Islam di abad ke-21, integrasi pengetahuan agama dan ilmiah menjadi sangat penting. Pendekatan ini bertujuan untuk memberikan pemahaman yang komprehensif kepada siswa dan menumbuhkan nilai-nilai baik untuk melawan perilaku tidak bermoral. Penelitian ini berfokus pada evaluasi konsep pembelajaran terpadu dalam mengimplementasikan 4C Skills (Berfikir Kritis, Komunikasi, Kolaborasi, dan Kreativitas) di kalangan siswa. Pendekatan kualitatif, khususnya tinjauan literatur sistematis, digunakan. Tinjauan melibatkan seleksi dan penyaringan yang teliti berdasarkan kriteria inklusi dan eksklusi yang telah ditetapkan. Temuan menunjukkan bahwa integrasi PAI dan sains dapat terwujud dalam evaluasi pembelajaran. Penerapan konsep pembelajaran terpadu dalam evaluasi secara positif mempengaruhi aktivitas belajar siswa, mencakup aspek kognitif, afektif, dan psikomotorik, dibantu dengan penerapan 4C Skills dalam lingkungan pembelajaran abad ke-21.

ABSTRACT

In the 21st century, the evolution of educational methodologies has significantly transformed Islamic Religious Education (IRE). This era demands students to acquire diverse competencies essential for their future, positioning IRE as crucial in mitigating the adverse effects of rapidly advancing science. To successfully navigate 21st-century Islamic education, an integration of religious and scientific knowledge is imperative. This approach aims to provide students with a comprehensive understanding and foster good values to counteract immoral behaviors. This research focuses on evaluating integrated learning concepts in implementing the 4C Skills (Critical thinking, Communication, Collaboration, and Creativity) among students. A qualitative approach, specifically a systematic literature review, was employed. The review involved meticulous selection and screening based on predetermined inclusion and exclusion criteria. The findings reveal that integrating IRE and science can manifest in learning evaluations. Implementing an integrated learning concept in evaluations positively influences student learning activities, spanning cognitive, affective, and psychomotor aspects, aided by the incorporation of 4C Skills in 21st-century learning environments.

KATA KUNCI

Pembelajaran Abad 21 ;
Pembelajaran Terpadu ;
Pendidikan Agama Islam ; Sains.

KEYWORDS

21st-Century Learning;
Integrated Learning; Islamic
Religion Education; Science.

A. Introduction

In the contemporary, learning pursuits have exponentially evolved in complexity throughout the 21st century. Consequently, an imperative metamorphosis within the realm of education has surfaced, necessitating a proactive response to confront the myriad challenges pervasive in this era. ¹ Essential to this transformation is the imperative to equip students with a spectrum of competencies that enable them to embody the caliber of skilled and adept human resources demanded by the contemporary landscape. Mastery of diverse skill sets pertinent to 21st-century learning is incumbent upon learners, positioning them to assume pivotal roles in the learning ecosystem, thereby facilitating their ability to effectively navigate and thrive amidst the multifaceted challenges inherent in the educational landscape of this century. ²

The quartet of competencies known as the 4Cs—comprising critical thinking, creativity, communication, and collaboration—stand as pillars essential for navigating the intricate landscape of 21st-century learning. ³ Concurrently, the overarching curricular frameworks across diverse subjects necessitate an evolution to harmoniously align with the core values emblematic of this era's educational advancement. ⁴ Moreover, within the expansive spectrum of subjects, Islamic religious education emerges as an adaptive discipline, showcasing its ability to seamlessly integrate one of the aforementioned four skills. This underscores its capacity to effectively cater to the requisites inherent in 21st-century learning paradigms. ⁵

¹ Tatang Hidayat and Abas Asyafah, "Konsep Dasar Evaluasi Dan Implikasinya Dalam Evaluasi," *Al-Tadzkiyyah: Jurnal Pendidikan Islam* 10, no. 1 (2019): 159–181; Firman Mansir, "Integration of Islamic Science and Science in Schools: Studies on Learning Islamic Religious Education in the Digital Era," *TADRIS: Jurnal Pendidikan Islam* 17, no. 2 (2022): 413–425; Abdul Mujala, Muhammad Reza, and Kana Puspita, "Pengembangan Buku Pegangan Guru Untuk Pembelajaran Kimia Terintegrasi Ayat-Ayat Al-Qur'an," *Jurnal Pendidikan Sains Indonesia* 10, no. 1 (2022): 161–175.

² Nurchairo Hidayati et al., "4Cs' (Critical Thinking, Communication, Collaboration, Creativity) Pada Era Revolusi Industri 4.0: Pentingnya Mengenalkan Keterampilan," *Community Education Engagement Journal* 3, no. 1 (2019): 58–66; Qurrotu A'yunin, Irma Soraya, and Asep Saepul Hamdani, "Learning Islamic Religious Education and Character with the Discovery Learning Model to Improve Students' Critical Thinking Ability," *Khazanah Pendidikan Islam* 4, no. 2 (2022): 96–102; Abdul Rohman, "Enhancing Student's Collaboration Through A Group Learning in Indonesian Madrasa," *Nadwa: Jurnal Pendidikan Islam* 15, no. 2 (2022): 217–246, <https://www.journal.walisongo.ac.id/index.php/Nadwa/article/view/10681>.

³ Zulvia Trinova, Dinasril Amir, and Pitri Andayani, "The Implementation Of Critical Thinking In 21ST Century Learning For Islamic Education.," *FITRAH: Jurnal Kajian Ilmu-ilmu Keislaman* 6, no. 1 (2020): 81–94; Dasep Bayu Ahyar et al., *Inovas Pembelajaran Abad 21, Pradina Pustaka*, vol. Pertama, 2022.

⁴ Rohman, "Enhancing Student's Collaboration Through A Group Learning in Indonesian Madrasa."

⁵ Nurchairo Hidayati et al., "4Cs' (Critical Thinking, Communication, Collaboration, Creativity) Pada Era Revolusi Industri 4.0: Pentingnya Mengenalkan Keterampilan," *Community Education Engagement Journal* 3, no. 1 (2019): 58–66; Qurrotu A'yunin, Irma Soraya, and Asep Saepul Hamdani, "Learning Islamic Religious Education and Character with the Discovery Learning Model to Improve Students' Critical Thinking Ability," *Khazanah Pendidikan Islam* 4, no. 2 (2022): 96–102; Abdul Rohman, "Enhancing Student's Collaboration Through A Group Learning in Indonesian Madrasa," *Nadwa: Jurnal Pendidikan Islam* 15, no. 2 (2022): 217–246, <https://www.journal.walisongo.ac.id/index.php/Nadwa/article/view/10681>.

The evolution of knowledge, particularly within the realm of science, has significantly influenced the landscape of Islamic religious education.⁶ Science as a broad discipline is commonly categorized into two primary branches: the natural sciences encompassing fields such as chemistry, biology, and physics, and the social sciences which include disciplines like psychology, anthropology, and sociology. This interconnectedness of science with various academic disciplines underscores its pivotal role as a fundamental catalyst within the educational domain. Moreover, science serves as the linchpin that intricately interlaces and intersects with all other academic pursuits. It stands as the principal impetus driving transformative endeavors within Islamic religious education, strategically responding to the dynamic requisites and challenges posed by the exigencies of 21st-century learning.

Islamic Religious Education in the 21st century, Islamic Religious Education encounters a multitude of challenges and expectations, encompassing both spiritual and intellectual dimensions. Spiritually, these topics are tasked with nurturing moral character while simultaneously fostering the intellectual development of students into well-rounded professionals. Within the realm of spirituality, Islamic religious education serves a crucial role as a safeguard against the potentially deleterious impacts arising from the swift progression of scientific advancements. Indeed, this constitutes a substantial challenge for Islamic religious education topics, requiring them to function as a protective barrier against the adverse consequences resulting from the rapid evolution of scientific frontiers. Notably, contemporary scientific advancements often pose dilemmas that challenge faith and moral values. Instances such as sex reassignment surgery, abortion, cryonics, and the legalization of same-sex marriage in various European countries serve as prevalent examples that disrupt traditional moral and ethical paradigms. Hence, within the purview of Islamic Religious Education, the subject faces the arduous task of engaging with and neutralizing the potentially conflicting impact of such scientific advancements on faith and moral values, striving to maintain a harmonious balance between intellectual progress and spiritual sanctity.⁷

The erosion of moral and ethical values is indicative of the adverse impact stemming from the significant strides witnessed in the realm of scientific progress. A discernible consequence of this phenomenon manifests in the diminished regard and compliance exhibited by students towards their instructors, driven by a perception of possessing greater wisdom and knowledge than their educators. Consequently, this prevailing attitude poses a critical challenge within the sphere of education, which inherently encompasses both intellectual and moral facets, leading to an imbalance detrimental to its overall efficacy. The resultant scenario foresees an educational output that might fall short, characterized by a notable discrepancy between intellectual growth and moral grounding. Therefore,

⁶ Zulvia Trinova, Dinasril Amir, and Pitri Andayani, "The Implementation Of Critical Thinking In 21ST Century Learning For Islamic Education.," *FITRAH: Jurnal Kajian Ilmu-ilmu Keislaman* 6, no. 1 (2020): 81–94; Dasep Bayu Ahyar et al., *Inovas Pembelajaran Abad 21*, Pradina Pustaka, vol. Pertama, 2022.

⁷ Muhamad Tisna Nugraha, "Integrasi Ilmu Dan Agama: Praktik Islamisasi Ilmu Pengetahuan Umum Di Perguruan Tinggi Keagamaan Islam," *Al-Hikmah: Jurnal Agama dan Ilmu Pengetahuan* 17, no. 1 (2020): 29–37.

the significance of learners' religiosity becomes paramount in this context. Elevating their commitment to religious principles assumes pivotal importance, serving as a foundation to strengthen their ethical conviction against immoral tendencies. Moreover, nurturing a higher level of religiosity equips learners with the acumen to become adept problem-solvers, thereby facilitating their ability to navigate complex ethical quandaries with resilience and sagacity.⁸

The discovery aligns seamlessly with the insightful words of Albert Einstein, encapsulated in his renowned quote, "Science without religion is blind, religion without science is lame." This adage emphasizes the critical significance of integrating science within the framework of 21st-century learning. Consequently, it becomes indispensable for learners to comprehend and internalize both vertical and horizontal virtues that harmonize with the core values espoused by the nation. Einstein's profound statement underscores the essential nature of amalgamating scientific knowledge with religious or ethical principles in the contemporary educational landscape. In this context, the recognition and adoption of virtues aligned with the nation's values—both in a vertical sense, emphasizing ethical principles, and horizontally, promoting societal values—become pivotal.⁹ This holistic understanding cultivates a balanced and comprehensive approach to education, fostering a generation of learners adept at navigating the intricacies of scientific advancements while grounding themselves in the ethical and moral fabric cherished by their society.¹⁰

The fusion of Islamic religious education and scientific principles within the framework of 21st-century learning stands as a critical imperative in nurturing a cohort of human resources characterized by both excellence and ethical standards.¹¹ This synergy serves as a conduit for instilling in students not only a virtuous character aligned with the precepts of Islamic teachings but also offers them tangible experiences that embody the application of the 4Cs—critical thinking, creativity, communication, and collaboration—within real-world scenarios. Furthermore, this approach serves as a strategic means of addressing the diverse array of requisites demanded of students in today's multifaceted landscape. By incorporating and infusing the 4C skills into the fabric of learning activities, learners acquire a multifaceted skill set essential for meeting the variegated demands of the contemporary world.

⁸ Nofrans Eka Saputra, Yun Nina Ekawati, and Rahmadhani Islamiah, "Skala Karakter Religius Siswa SMA Implementasi Nilai Utama Karakter Kemendikbud," *Jurnal Pengukuran Psikologi dan Pendidikan Indonesia* 9, no. 1 (2020): 57–76; Rezza Dwiyo Yanyanto, Khozin Khozin, and Fathor Rahim, "Formation of Religious Character in Santri Students at the Abu Dzar Al Ghifari Islamic Boarding School Malang," *Jurnal Tarbiyatuna* 12, no. 1 (2021): 49–62.

⁹ Br Sinulingga Eva Diana, "Urgensi Integrasi Ilmu Sebagai Upaya Menumbuhkan Karakter Islami Dalam Proses Pembelajaran," *Book Chapter of Proceedings Journey-Liaison Academy and Society* 1, no. 1 (2022): 189–195, <https://j-las.lemkomindo.org/index.php/BCoPJ-LAS>.

¹⁰ Saputra, Ekawati, and Islamiah, "Skala Karakter Religius Siswa SMA Implementasi Nilai Utama Karakter Kemendikbud"; Kandari Kandari et al., "Building Students' Moral Through Uswatun Hasanah Principles: A Systematic Literature Review," *Nadwa: Jurnal Pendidikan Islam* 15, no. 1 (2021): 109–128.

¹¹ Rabi'atul Adawiah, "Integrasi Sains Dan Agama Dalam Pembelajaran Kurikulum ISLAMIC RELIGION EDUCATION (Perspektif Islam Dan Barat Serta Implementasinya)," *Al-Banjari* 1, no. 02 (2016): 99–124, [http://dspace.unitru.edu.pe/bitstream/handle/UNITRU/10947/Miñano Guevara%2C Karen Analisis.pdf?sequence=1&isAllowed=y%0Ahttps://repository.upb.edu.co/bitstream/handle/20.500.11912/3346/DIVERSIDAD DE MACROINVERTEBRADOS ACUÁTICOS Y SU.pdf?sequence=1&isAllowed=y](http://dspace.unitru.edu.pe/bitstream/handle/UNITRU/10947/Miñano%20Guevara%20Karen%20Analisis.pdf?sequence=1&isAllowed=y%0Ahttps://repository.upb.edu.co/bitstream/handle/20.500.11912/3346/DIVERSIDAD%20DE%20MACROINVERTEBRADOS%20ACUÁTICOS%20Y%20SU%20IMPACTO%20EN%20EL%20ECOSISTEMA%20ACUÁTICO.pdf?sequence=1&isAllowed=y).

Equipping students with proficiencies in critical thinking, creativity, communication, and collaboration not only facilitates their adaptability within the professional sphere but also enhances their capacity to navigate and excel within diverse work environments.

The study conducted by Maragustam Siregar et al., titled “Integrasi Materi Pendidikan Agama Islam dalam Ilmu-ilmu Rasional di Sekolah Menengah Atas Islam Terpadu,” delves into the integration of Islamic religious education and science within the context of three pivotal aspects: philosophical underpinnings, learning materials, and pedagogical strategies.¹² This research underscores the multifaceted nature of amalgamating these two domains and highlights the significance of considering various dimensions for a comprehensive integration process. Similarly, Wahyu Hidayat and Tatang Ibrahim, in their study titled “Implementing of Science, Social Integration in Islamic Education Learning,” expound upon the integration of Islamic religious education and science, elucidating four key avenues through which this integration can be effectively actualized: through learning competitions, tailored learning materials, strategic pedagogical approaches, and comprehensive learning evaluations. This research sheds light on diverse methodologies and frameworks that can be harnessed to achieve a robust and comprehensive fusion of Islamic teachings with scientific knowledge within the educational context.¹³

Both studies have concurred that integrating Islamic religious education and science revolves around the overarching vision and missions of educational institutions. This integration aims to cultivate students endowed not only with proficient technological skills but also with devout and morally upright personas.¹⁴ Furthermore, a crucial aspect highlighted in both studies emphasizes the significance of establishing a relationship between scientific knowledge and the divine wisdom found in the Qur'an—drawing connections between scientific phenomena (kauniyah) and the teachings encapsulated in Allah's words (qauliyah). This linkage is imperative in fostering an understanding of science within the ethical framework of Islamic values. The philosophical dimension emerges as one of the vital forms through which this integration is actualized. This aspect involves contemplating the philosophical underpinnings that harmonize Islamic principles with scientific tenets, thereby facilitating a holistic comprehension of various academic disciplines within the context of Islamic teachings.¹⁵ By incorporating philosophical aspects, educational institutions endeavor to create a cohesive synthesis between scientific exploration and the ethical foundation rooted in Islamic teachings, fostering a comprehensive understanding of the world that unites empirical inquiry with spiritual insights.

¹² Maragustam Siregar, Dwi Noviatul Zahra, and Dian Andesta Bujuri, “Integrasi Materi Pendidikan Agama Islam Dalam Ilmu-Ilmu Rasional Di Sekolah Menengah Atas Islam Terpadu,” *Al-Tadzkiyyah: Jurnal Pendidikan Islam* 10, no. 2 (2020): 183–201.

¹³ Hidayat and Ibrahim, “Implementing of Science-Social Integration in Islamic Education Learning.”

¹⁴ Siregar, Zahra, and Bujuri, “Integrasi Materi Pendidikan Agama Islam Dalam Ilmu-Ilmu Rasional Di Sekolah Menengah Atas Islam Terpadu.”

¹⁵ Hidayat and Ibrahim, “Implementing of Science-Social Integration in Islamic Education Learning.”

In the realm of learning materials, the integration of Islamic values plays a pivotal role, permeating various.¹⁶ scientific disciplines such as biology, chemistry, physics, sociology, anthropology, and psychology.¹⁷ This incorporation involves internalizing Islamic ethical principles and perspectives within the context of these scientific subjects. It aims to infuse academic curricula with a deeper understanding of scientific concepts in alignment with Islamic values, facilitating a holistic approach to learning that encompasses both empirical knowledge and ethical considerations,¹⁸ in terms of learning strategy, integrating Islamic religious education and science involves a multifaceted approach.¹⁹ By interweaving verses or hadith interpretations during the learning process, educators aim to foster heightened enthusiasm and motivation among learners. This integration strategy aims to augment the learning experience, providing contextual relevance and moral insights that enhance students' engagement and encourage a deeper comprehension of subject matter. Additionally, aligning the characteristics of the learning material with a strategically applied teaching approach contributes to the effective integration of Islamic values within the educational framework, within the context of learning evaluation, the integration process is substantiated through a comprehensive and authentic assessment methodology. Employing both test-based and non-test-based techniques enables educators to gauge the depth of understanding attained throughout the learning journey. This evaluation mechanism serves to identify and measure the assimilation of integrated Islamic values within the scientific curriculum, thereby assessing the efficacy and depth of students' comprehension in merging scientific knowledge with ethical and moral principles derived from Islamic teachings.²⁰

The elaboration from previous studies prompts an essential inquiry: Is assessing learners' performance solely through authentic assessment methods sufficient during learning activities? This question emerges from the realization that authentic assessment, while effective in evaluating students' cognitive abilities, may inadvertently limit the assessment scope by neglecting students' affective and psychomotor capacities.

The focus on learning outcomes often tied to grades has led to an oversight in assessing the comprehensive spectrum of students' abilities. A specialized study is imperative to address this limited pattern in student assessment, which, due to this focus, neglects vital aspects of students' capabilities beyond cognitive domains. In evaluating students' learning processes in the realms of Islamic religious education and science in the contemporary era, a more intricate and multifaceted approach to learning evaluation becomes imperative, encompassing cognitive, affective, and psychomotor aspects.

¹⁶ Siregar, Zahra, and Bujuri, "Integrasi Materi Pendidikan Agama Islam Dalam Ilmu-Ilmu Rasional Di Sekolah Menengah Atas Islam Terpadu."

¹⁷ Hidayat and Ibrahim, "Implementing of Science-Social Integration in Islamic Education Learning."

¹⁸ Siregar, Zahra, and Bujuri, "Integrasi Materi Pendidikan Agama Islam Dalam Ilmu-Ilmu Rasional Di Sekolah Menengah Atas Islam Terpadu."

¹⁹ Hidayat and Ibrahim, "Implementing of Science-Social Integration in Islamic Education Learning."

Ibid.²⁰

Recognizing the pivotal role of learning evaluation as a benchmark for assessing the success of a learner's educational journey, there arises a pressing need to broaden assessment methodologies.²¹ The proposed concepts in this paper advocate for an integrated curriculum approach to assessment and evaluation, emphasizing the need to encompass diverse elements within the assessment framework. This integrated approach seeks to offer learners a more meaningful and comprehensive learning experience, ensuring a holistic evaluation that acknowledges and nurtures not only cognitive understanding but also emotional intelligence and practical skills.

Integrated learning plays a pivotal role in shaping students' knowledge by leveraging their interaction patterns within their environments and personal life experiences. This pedagogical approach is instrumental in immersing students in learning practices that foster meaningful interactions within their surroundings.²²

Employing a qualitative approach, the researchers conducted a systematic literature review to delve into this educational paradigm. The method employed involves a comprehensive analysis and exposition of various article sources to fulfill the research objectives.²³ The researchers gathered primary and secondary data, wherein primary data was obtained from a book titled "Pembelajaran Terpadu,"²⁴ serving as a foundational source for this study.

Simultaneously, secondary data was sourced from relevant journal articles aligned with the research requirements. The researchers retrieved these articles from search results on reputable platforms such as Google Scholar and Garuda, a prominent journal portal. The data collection phase spanned two weeks, from July 31st to August 11th, 2023. The research method followed four sequential stages of the systematic literature review process: identification, screening, eligibility, and inclusion. These stages were instrumental in meticulously verifying the secondary data obtained from various sources, ensuring their relevance and alignment with the research objectives.²⁵

In the identification section, the researchers employed Google Scholar and Garuda to conduct a comprehensive search for journal articles related to the integration of Islamic religious education and science. Utilizing specific keywords such as "integration of Islamic religion education and science," "integration of Islamic religion education and natural and social science," among others, approximately 35,457 articles were available across these two journal portals.

Subsequently, in the screening phase, the researchers established stringent criteria to sift through the vast number of articles obtained from Google Scholar and Garuda. The inclusion criteria

²¹ Hidayat and Asyafah, "Konsep Dasar Evaluasi Dan Implikasinya Dalam Evaluasi."

²² Ananda and Abdillah, "Pembelajaran Terpadu Karakteristik, Landasan, Fungsi, Prinsip Dan Model."

²³ Evi Triandini et al., "Metode Systematic Literature Review Untuk Identifikasi Platform Dan Metode Pengembangan Sistem Informasi Di Indonesia," *Indonesian Journal of Information Systems* 1, no. 2 (2019): 63.

²⁴ Ani Kadarwati and Vivi Rulviana, "Pembelajaran Terpadu," in *CV. AE Media Grafika*, Pertama. (Magetan, 2020), 1–181.

²⁵ Nanik Shobikah, "Factor Analysis Affecting English Speaking Proficiency Based Open Access Articles on ScienceDirect Database," *Al-Hayat: Journal of Islamic Education* 7, no. 1 (2023): 131.

were set to encompass articles accredited at least Sinta-2 to Sinta-1, indexed in Scopus, and published in international journals between the years 2016 to 2023. Moreover, the researchers further refined their search using specific keywords such as "integration of Islamic religion education with science in 21st-century learning" and "concept of integrated learning in the integration of Islamic religion education and science." These targeted keywords led to the discovery of around 104 journal articles that met the specified inclusion criteria.

In the eligibility section, from the initial 104 journal articles identified through the inclusion process, the researchers established exclusion criteria to refine the selection of research materials. These criteria aimed to exclude articles solely discussing specific science categories—natural and social sciences contributing to the development of Islamic values, as well as those focusing on the evaluation of 21st-century learning with the development of 4C skills competencies. Upon applying these exclusion criteria, a total of 31 articles remained for further analysis. However, after a deeper examination, these articles did not align with the specified criteria and were subsequently omitted, allowing for progression to the next stage: in-depth analysis. Moving to the in-depth analysis phase, the researchers scrutinized the journal articles derived from the eligibility process. Evaluation and perception were utilized as the primary instruments to comprehensively verify the research objectives. This research aims to delineate the form of learning evaluation within the framework of integrated learning, specifically focusing on implementing the 4C skills. The goal is to design a multifaceted evaluation approach encompassing cognitive, affective, and psychomotor aspects, thereby providing students with a comprehensive assessment from various dimensions.

This concept of evaluation is poised to enhance the integration of Islamic religious education and science within the realm of learning assessment. By implementing the 4C skills in 21st-century learning and offering learners a meaningful experience, this comprehensive evaluation approach seeks to equip students with a holistic understanding and practical application of knowledge, aligning with the objectives of integrated learning.

B. Forms of Integrating Islamic Religious Education with Science in 21st-Century Educational Contexts

The fusion of Islamic religious education within the sphere of learning evaluation stands as a potent means to achieve integration. This amalgamation of scientific competencies with religious values empowers educators to innovate and collaborate in crafting innovative learning evaluation methodologies.²⁶ Consequently, this evolution has prompted educators to adopt a fresh approach in engaging students throughout the learning process.

²⁶ Nining Purwati et al., "Mapping Basic Science and Religious Competencies: An Initial Step to Realizing Integrated Science Learning With Islamic Values," *Biosfer : Jurnal Pendidikan Biologi* 16, no. 1 (2023): 186–196, <https://doi.org/10.21009/biosferjpb.30799>.

However, notable differences emerge when integrating Islamic religious education and science within the landscape of 21st-century learning. These differences are palpable in the approaches employed by educators during learning activities. Traditional educational approaches often exhibit rigidity, primarily centered on textbooks, devoid of the utilization of multimedia or instructional aids during the learning journey. Consequently, this conventional approach results in learning activities that lack vibrancy and fail to captivate student interest, leading to a sense of monotony and disengagement among learners.

At this juncture, the incorporation of the 4C skills presents a novel approach to bridging the gap between Islamic religious education and science. Integrating these competencies into learning evaluations renders them more engaging and diverse, stimulating learners' abilities across the 4Cs—critical thinking, creativity, communication, and collaboration.²⁷ Consequently, learners exhibit heightened interest levels and increased curiosity throughout the evaluation process. Moreover, this approach fosters an open-mindedness among learners, enabling them to receptively absorb diverse ideas that contribute to their holistic development during the evaluation stage.²⁸

These competencies play a pivotal role in nurturing learners' creativity, empowering them to independently employ evaluation techniques to devise solutions to various challenges they encounter. This evaluation process encompasses both conceptual understanding and practical implementation, enabling learners to apply their knowledge in real-world scenarios effectively.²⁹ Furthermore, it is imperative to synchronize learning evaluations with the demands of the 21st century. This adaptation requires aligning the evaluation methods with the contemporary context of 21st-century learning, ensuring that the assessment strategies and tools remain relevant and conducive to preparing learners for the challenges and dynamics of the present era.³⁰

Learners in the realm of 21st-century education have an array of available media at their disposal, especially considering the integration of technology into the learning process. In this context, learners can harness various digital platforms as valuable resources. For instance, tools like Quizizz and Kahoot serve as alternatives in identifying learning gaps during evaluations.³¹

²⁷ Roswanna Safkolam et al., "Students' Understanding of Nature of Science in Islamic Private School," *Jurnal Pendidikan Islam* 9, no. 1 (2023): 1–14, <http://journal.uinsgd.ac.id/index.php/jpi%0A>ISSN:

²⁸ Febblina Daryanes and Irda Sayuti, "Research-Based Learning In Biology Courses to Train Students Critical Thinking Skills: Student's Perception," *Biosfer: Jurnal Pendidikan Biologi* 16, no. 1 (2023): 124–137, <http://journal.unj.ac.id/unj/index.php/biosfer>.

²⁹ Agus Ramdani et al., "Pengembangan Alat Evaluasi Pembelajaran Ipa Yang Mendukung Keterampilan Abad 21," *Jurnal Penelitian Pendidikan IPA* 5, no. 1 (2019): 98–108.

³⁰ Herman Wicaksono, "Pendidikan Islam Dalam Perspektif Antropologi," *Mudarrisa: Jurnal Kajian Pendidikan Islam* 19, no. 2 (2016): 209–222.

³¹ Yuni Pantiwati et al., "Higher Education Student Responses To The Use of Online Assessments on Biology Material," *JPBI: Jurnal Pendidikan Biologi Indonesia* 9, no. 2 (2023): 122–133, <https://doi.org/10.22219/jpbi.v9i2.26167>.

Engaging in problem-based learning evaluations can significantly shape learners' mindsets, preparing them to confront unstructured scenarios. This practice nurtures adaptability, prompting learners to swiftly adjust to diverse circumstances.³² Moreover, it cultivates improved communication and collaboration skills among learners, facilitating the exploration of optimal solutions in conjunction with other stakeholders.³³

The integration of 4C skills into the learning process exerts a profound impact on learners, particularly within the assessment framework, rendering it more robust and valid. This comprehensive process encompasses multiple facets, including competency indicators, tests assessing these competencies, evaluation of these assessments,³⁴ appraisal of creative solutions, and rubric-based assessments of psychomotor skills.³⁵ These facets gauge understanding, interpretation, analysis, and ultimately draw conclusions on a subject matter. Additionally, they assess the fluency, flexibility, depth, and originality of generated ideas.³⁶

This amalgamation highlights the inseparability of integrating Islamic religious education with science within the fabric of 21st-century learning's enculturation. It underscores the necessity for adjustments aimed at achieving optimal learning outcomes.³⁷ Integrating the virtues embedded in Islamic religious education with scientific knowledge serves to harmonize intelligence, attitudes, and both tangible and intangible skills.³⁸

Educational institutions must bolster these endeavors by fostering an environment conducive to innovation, allowing educators and learners alike to explore novel methodologies that align with desired educational objectives.³⁹ Initiatives such as the Merdeka Belajar Kampus Merdeka (MBKM) program, initiated by the Ministry of Education and Culture of the Republic of Indonesia, serve as

³² Made Wisnu Adi Pramana, I Nyoman Jampel, and Ketut Pudjawan, "Meningkatkan Hasil Belajar Biologi Melalui E-Modul Berbasis Problem Based Learning," *Jurnal Edutech Undiksha* 8, no. 2 (2020): 17–32, <https://ejournal.undiksha.ac.id/index.php/JEU%0AMeningkatkan>.

³³ Herta Astri Yudika Sinurat, Syaiful Syaiful, and Damris Muhammad, "The Implementation of Integrated Project-Based Learning Science Technology Engineering Mathematics on Creative Thinking Skills and Student Cognitive Learning Outcomes in Dynamic Fluid," *Jurnal Penelitian & Pengembangan Pendidikan Fisika* 8, no. 1 (2022): 83–94.

³⁴ Diah Kartika Sari et al., "Development of Authentic Assessment Based on Creative Thinking Skills in A Carbohydrates Qualitative Analysis Project-Based Using Local Material," *JKPK (Jurnal Kimia dan Pendidikan Kimia)* 6, no. 2 (2021): 173.

³⁵ Desnita Desnita, "Validity and Reliability of Critical Thinking Instruments to Measure the Effectiveness of Context-Based Physics E-Module on Wave Materials," *Jurnal Penelitian & Pengembangan Pendidikan Fisika* 8, no. 1 (2022): 57–64.

³⁶ Nofi Eriana Sulistiani and Rudiana Agustini, "Improvement of Student's Creative Thinking Skills By Guided Inquiry-Based Student Worksheet in Acid-Base Materials," *Jurnal Pendidikan Kimia* 14, no. 3 (2022): 139–148.

³⁷ Ivan Riyadi, "Manajemen Pendidikan Bermuatan Antropologi, Agama Dan Sosial," *Cendekia: Jurnal Kependidikan Dan Kemasyarakatan* 17, no. 2 (2019): 301–316.

³⁸ Anggun Zuhaida, "INTEGRATIVE SCIENTIFIC MADRASAH IN INDONESIA: New Developments in Integrating Science and Religion in the Learning Processes," *Jurnal Ilmiah Islam Futura* 18, no. 1 (2019): 34.

³⁹ Nurhadi Nurhadi, "Pemilihan Sekolah Swasta Berbasis Agama Dalam Perspektif Angst Society," *JSW (Jurnal Sosiologi Walisongo)* 2, no. 2 (2018): 203–216.

exemplary frameworks that empower learners to innovate at the university level, opening pathways for the evolution of educational practices.⁴⁰

C. Enhancing Learning Evaluation through the Application of Integrated Learning Concepts

In A foundational learning concept stands as a prerequisite for the successful amalgamation of Islamic religious education and scientific knowledge within the framework of 21st-century learning. Integrated learning emerges as a pivotal solution in supporting this seamless integration of disciplines. Through a comprehensive examination, both concepts share a common goal: to provide learners with enriching and purposeful learning encounters.⁴¹ Furthermore, this learning concept is intricately intertwined with learners' experiences, serving as a catalyst in shaping their knowledge.

This learning concept delineates an intriguing overarching scheme or structure, significantly influenced by students' experiences, which in turn contribute to the formation of their knowledge. The amalgamation of Islamic religious education and science within the framework of 21st-century learning, when intertwined with the concept of integrated learning, introduces a distinctive facet to the learning process.

Central to integrated learning is the emphasis placed on observing the processes in which students engage. This approach keenly observes the learning processes undertaken by learners themselves. This paradigm facilitates a comprehensive problem-solving approach, enabling learners to delve deeply into the solutions they devise by broadening their perspective on issues and interconnecting them with their own experiences. Through this learning concept, learners are equipped to develop solutions by critically examining problems and intricately linking them to their experiential knowledge base.⁴²

Students, when immersed in a learning environment that combines Islamic religious education and science in the 21st century, develop a heightened sense of self-reliance in their educational pursuits. This empowerment enables them to proactively prepare for a diverse array of learning needs that may arise. Additionally, it fosters the capability for students to evaluate their own learning processes. In instances where difficulties surface during this evaluation, students have the opportunity to engage in discussions with peers or seek guidance from educators. This distinctive learning scheme accentuates a novel approach born from the fusion of Islamic religious education and science.

Historically, the conventional method of learning evaluation predominantly relied on authentic assessments utilizing both test-based and non-test-based techniques. Educators typically assessed

⁴⁰ Ahmad Muttaqin and Ustadi Hamsah, "Gagasan Studi Agama Terapan Dalam Bingkai Kampus Merdeka: Perspektif Sosiologi Pengetahuan," *Jurnal Sosiologi Agama* 15, no. 2 (2021): 171–190.

⁴¹ Kadarwati and Rulviana, "Pembelajaran Terpadu."

⁴² Rusydi Ananda and Abdillah, "Pembelajaran Terpadu Karakteristik, Landasan, Fungsi, Prinsip Dan Model," in *Lembaga Peduli Pengembangan Pendidikan Indonesia (LPPPI)*, 2018, 1–238.

learners' educational achievements through oral and written examinations, complemented by non-test assessments such as journal entries or portfolio submissions.

However, these assessments often skewed towards evaluating the cognitive aspects of learning, inadvertently sidelining the psychomotor and affective domains. As a consequence, there's a need for a more balanced approach, allocating equal weightage to evaluate both cognitive and non-cognitive facets. Addressing these deficiencies becomes imperative to refine and fortify the integration of Islamic religious education and science within the framework of learning evaluations.

The paradigm of integrated learning, underscored by two fundamental principles: self-assessment/self-evaluation and educator-guided facilitation towards achieving learning targets, stands poised as a methodology capable of evaluating learners' psychomotor and affective dimensions.⁴³ Consequently, this concept holds promise in manifesting the competencies associated with the 4Cs skills (Critical Thinking, Communication, Collaboration, and Creativity) within the evaluation of the integration of Islamic religious education and science within 21st-century learning paradigms.

D. Discussion

In the realm of integrated learning, the evaluation principle centers around a dual-step process. Firstly, there is the facet of self-assessment or self-evaluation, affording learners the opportunity for introspection and self-reflection regarding their own progress and understanding. Secondly, educators play a pivotal role in guiding learners through the assessment of their learning outcomes, aligning these evaluations with predetermined success criteria or mutually agreed-upon targets set for achievement.⁴⁴

Self-Evaluation and Self-Assessment: Enhancing Affective and Psychomotor Skills

The ability of learners to autonomously evaluate themselves plays a critical role in the development of affective and psychomotor skills.⁴⁵ This self-directed assessment fosters a heightened sense of confidence as learners apply their personal experiences to problem-solving.⁴⁶ It enhances their understanding of complex problems, enabling them to identify more effective solutions.⁴⁷ Furthermore, such activities stimulate higher-order thinking skills by connecting theoretical problems to real-world scenarios, thus enriching the learning experience.⁴⁸

⁴³ Kadarwati and Rulviana, "Pembelajaran Terpadu."

⁴⁴ Kadarwati and Rulviana, "Pembelajaran Terpadu."

⁴⁵ Ida Bagus Arjaya Ari and Ketut Suma, "Problems of Biology Learning and Evaluation Analysis at The Cipp Model Based Higher Education Level," *Biosfer : Jurnal Pendidikan Biologi* 16, no. 1 (2023): 152–167, <http://journal.unj.ac.id/unj/index.php/biosfer%0AProblems>.

⁴⁶ Hamdan Hamdan, Nashuddin Nashuddin, and Adi Fadli, "The Implementation of Multicultural Islamic Religious Education Model at Darul Muhajirin Praya High School," *Jurnal Pendidikan Agama Islam* 19, no. 1 (2022): 165–178.

⁴⁷ Bayu Pranata, Agus Suyatna, and Undang Rosidin, "Pengembangan Asesmen Higher Order Thinking Skills (HOTS) Berbasis Computer Based Test (CBT) Pada Materi Induksi Elektromagnetik," *Jurnal Pengukuran Psikologi dan Pendidikan Indonesia* 9, no. 2 (2020): 83–98.

⁴⁸ Ricky Ardiansah and Z Zulfiani, "Development of Interactive E-LKPD Based On Creative Thinking Skills On the Concept of Environmental Change," *JPBI: Jurnal Pendidikan Biologi Indonesia* 9, no. 2 (2023): 179–197.

Critical thinking, integral to this process, further refines learners' problem-solving abilities. Through evaluative practices, learners delve into deep questioning, initiating solution-oriented thinking.⁴⁹ This process also serves as a valuable platform for learners to identify and address their individual weaknesses.⁵⁰

Empowering Learners through Self-Knowledge

Learners who possess self-awareness gain a deeper comprehension of their situational contexts. This awareness propels them towards actively developing necessary skills to offset their shortcomings. Such self-awareness extends to enhancing communication and collaboration skills, particularly in group settings, facilitating the formation of new social and academic connections. These connections prove invaluable in project creation, fostering a space for the realization of creative ideas.

The collaborative projects, forged through these connections, provide learners with unique and invaluable experiences. These experiences are not only educational but also equip students with diverse skills that are beneficial for their future endeavors.⁵¹

4Cs Skills: Motivation and Broadening Perspectives

The evaluation process, grounded in the competencies of the 4Cs skills—critical thinking, creativity, communication, and collaboration—motivates learners to adopt a more exploratory and collaborative approach in their learning. It enables them to view problems from various perspectives, thereby broadening their knowledge base and ensuring a more comprehensive understanding of information.⁵² These facets are particularly significant in the context of integrating Islamic education with science, as envisioned in 21st-century educational paradigms.

Aligning with Educational Objectives in Indonesia

These The evaluation format for integrating Islamic religious education and science into 21st-century learning is characterized by its remarkable flexibility. The guidance and assessment provided by educators need not be confined to face-to-face interactions but can occur both synchronously and asynchronously,⁵³ accommodating the diverse needs of learners. This adaptable approach allows

⁴⁹ Naafi Aisya et al., "The Effect of Reading Questioning Answering Integrated With Creative Problem Solving on Critical Thinking," *JPBI: Jurnal Pendidikan Biologi Indonesia* 9, no. 2 (2023): 198–205.

⁵⁰ Alfian Primahesa and Murni Ramli, "Improving Higher Order Thinking Skills In High School Biology: A Systematic Review," *Biosfer : Jurnal Pendidikan Biologi* 16, no. 1 (2023): 206–218, <https://doi.org/10.21009/biosferjpb.26724%0A10.21009/biosferjpb.26724>.

⁵¹ Khaeruddin Khaeruddin and Hartono Bancong, "STEM Education Through PhET Simulations: An Effort to Enhance Students' Critical Thinking Skills," *Jurnal Ilmiah Pendidikan Fisika Al-Biruni* 11, no. 1 (2022): 35–45.

⁵² Zuhaida, "INTEGRATIVE SCIENTIFIC MADRASAH IN INDONESIA: New Developments in Integrating Science and Religion in the Learning Processes."

⁵³ Maria Paristiowati et al., "Analysis of Students' Critical Thinking Skills by Applying Flipped Classroom Learning Model Using Powtoon Application on The Topic of Salt Hydrolysis," *JKPK (Jurnal Kimia dan Pendidikan Kimia)* 7, no. 3 (2022): 379.

educators to tailor evaluations based on learners' specific requirements, ensuring that only areas where learners encounter challenges are evaluated. Additionally, evaluation activities can be conducted in online or offline settings, providing further flexibility.⁵⁴

This flexibility in evaluation processes enhances efficiency, offering significant benefits for learners. It encourages innovation as learners engage collaboratively with educators in evaluation activities.⁵⁵ Learners can strategize by creating comprehensive charts or similar visual aids to depict their grasp of learning materials, fostering the practice of observation, reflection, and effective communication—criteria aligned with the implementation of the 4Cs skills.⁵⁶

A critical consideration for educators during learning evaluations is the duration of these assessments. Routine evaluations must align with learners' needs to optimize the substantiality and efficacy of these interactions. This adjustment in timing naturally facilitates a conducive environment for both educators and learners to engage in the learning process effectively.⁵⁷ This adaptability in evaluation methods not only supports individualized learning but also promotes a more efficient and engaging learning environment for all involved parties.

The integration of Islamic religious education and science within learning evaluations yields positive impacts on both the learning development and processes. This integration fosters a connection between educators and learners,⁵⁸ emphasizing the concept of trust and incorporating values within the realm of scientific learning.⁵⁹ The establishment of trust and reverence towards the existence of God serves as a catalyst in stimulating the holistic development of learners' cognitive, affective, and psychomotor faculties.⁶⁰ This emotional and spiritual facet is actualized through a collaborative process involving both the learning materials and educators' pedagogical skills, nurturing virtuous habits and behaviors among learners.⁶¹

These diverse influences underscore the advantageous implications of intertwining Islamic religious education and science within learning evaluations, particularly in nurturing learners' affective

⁵⁴ Suci Desmarani et al., "The Effect of E-LKPD on The Inquiry-Flipped Classroom Model and Self-Efficacy on Students' Creative Thinking Ability," *Jurnal Pendidikan Kimia* 14, no. 3 (2022): 193–200.

⁵⁵ Maison Maison et al., "Process Skills-Based E-Module: Impact On Analytical Thinking Skills," *Jurnal Penelitian & Pengembangan Pendidikan Fisika* 8, no. 1 (2022): 23–34.

⁵⁶ Maryani Maryani, Yasmin Yuliana, and Firdha Kusuma Ayu Anggraeni, "Physics Event Photo Analysis Module Based On The STEM Approach: An Effort to Enhance Critical Thinking," *Jurnal Ilmiah Pendidikan Fisika Al-Biruni* 10, no. 2 (2021): 251–264.

⁵⁷ Yohannes, Dadang Juandi, and Maximus Tamur, "The Effect of Problem-Based Learning Model on Mathematical Critical Thinking Skills of Junior High School Students: A Meta-Analysis Study," *Jurnal Pengukuran Psikologi dan Pendidikan Indonesia* 10, no. 2 (2021): 142–157.

⁵⁸ Purwati et al., "Mapping Basic Science and Religious Competencies: An Initial Step to Realizing Integrated Science Learning With Islamic Values."

⁵⁹ Agung Nugroho Catur Saputro, Nurfini Aznam, and Crys Fajar Partana, "Integration Method of Religious Character Values in Chemistry Learning," *JKPK (Jurnal Kimia dan Pendidikan Kimia)* 7, no. 1 (2022): 111.

⁶⁰ Khairul Nizam bin Zainal Badri, "Balanced Education According to Imam Al-Zarnuji," *Tafkir: Interdisciplinary Journal of Islamic Education* 3, no. 2 (2022): 135–147.

⁶¹ Purwati et al., "Mapping Basic Science and Religious Competencies: An Initial Step to Realizing Integrated Science Learning With Islamic Values."

and psychomotor dimensions. This positive impact manifests as learners' recognition of their own limitations during the learning journey, such as instances of forgetting to engage in prayer before commencing a lesson.⁶²

Consequently, learners imbibe religiously-inclined personalities that manifest in their care and concern for various elements within their surroundings. This care extends to the people and environment within the school,⁶³ fostering a culture of mutual respect and appreciation of differing opinions among students. This concerted effort contributes to the creation of a harmonious learning environment, establishing a sense of cohesion and balance within the educational setting.⁶⁴

Integrating Islamic values into science learning offers learners resilience, defined as the capacity to recover from disappointment or failure.⁶⁵ This resilience stems from the spiritual grounding learners receive through the integration of Islamic religious education and science. The incorporation of Islamic values aids in dispelling disappointment and anxiety by spiritually fortifying learners.⁶⁶ Spiritual self-strengthening practices such as fasting and engaging in dhikr (remembrance of God) have been proven to grant learners self-control and evoke feelings of contentment.⁶⁷

The psychomotor aspect is exemplified through various skills exhibited by students, such as interpreting objects and articulating.⁶⁸ their findings in diverse formats like posters, pictures, charts, or diagrams. These skills serve as active responses or actions to the acquired information, aiding in comprehension and communication.⁶⁹

The concept of integrated learning, particularly the fusion of Islamic religious education and science within 21st-century learning evaluations, exerts significant influence encompassing cognitive, affective, and psychomotor dimensions. Learners are profoundly impacted by educators' guidance and the application of the 4C skills—Critical Thinking, Communication, Collaboration, and Creativity. The implementation of these skills equips learners to generate innovative ideas to solve problems and

⁶² Catur Saputro, Aznam, and Partana, "Integration Method of Religious Character Values in Chemistry Learning."

⁶³ Abdul Karim, "Integration of Religious Awareness in Environmental Education," *Qudus International Journal of Islamic Studies* 10, no. 2 (2022): 415–442, <https://journal.iainkudus.ac.id/index.php/QIJS/index>; Demina et al., "Implementation Of Integrated Learning of Islamic Religious Education to Improve Student's Social Attitude Competence," *TADRIS: Jurnal Pendidikan Islam* 17, no. 1 (2022): 85–99.

⁶⁴ Muhammad Darwis Dasopang, H. J. Sammali Bin H.J. Adam, and Ismail Fahmi Arrauf Nasution, "Integration of Religion and Culture in Muslim Minority Communities Through Islamic Education," *Jurnal Pendidikan Islam* 8, no. 2 (2022): 221–238; Demina et al., "Implementation Of Integrated Learning of Islamic Religious Education to Improve Student's Social Attitude Competence."

⁶⁵ Dian Kusuma Hapsari, Usmi Karyani, and Wisnu Hertinjung, "Positive Psychology Online Training Based on Islamic Value to Improve Student Resilience," *Indigenous: Jurnal Ilmiah Psikologi* 6, no. 3 (2021): 36–48.

⁶⁶ M Arif Khoiruddin and Ahmad Masrukin, "Character Education Based on the Qadiriyyah Naqsyabandiyah Tharīqah in Islamic Vocational High School," *Psikis : Jurnal Psikologi Islami* 8, no. 1 (2022): 31–39.

⁶⁷ Indal Abror and Muhammad Rizky Romdonny, "Internalization of Religion In The Dalail Khairat Fasting Tradition At Jekulo Islamic Boarding School Kudus," *Jurnal Sosiologi Agama: Jurnal Ilmiah Sosiologi Agama dan Perubahan Sosial* 17, no. 1 (2023): 103–120.

⁶⁸ Maryani, Yuliana, and Anggraeni, "Physics Event Photo Analysis Module Based On The STEM Approach: An Effort to Enhance Critical Thinking."

⁶⁹ Khoiruddin and Masrukin, "Character Education Based on the Qadiriyyah Naqsyabandiyah Tharīqah in Islamic Vocational High School."

heightens their environmental awareness. Additionally, fostering self-resilience enables learners to better manage their emotions, effectively combating stress and depression, thereby facilitating personal revival.⁷⁰

This heightened awareness cultivated through integrated learning is pivotal in mitigating unethical actions in the face of rapid scientific advancements, ensuring that learners navigate these advancements while upholding moral values.

To The integration of science and Islamic religious education in 21st-century learning holds intriguing implications, offering a myriad of possibilities within the integrated learning framework. This fusion allows educators to devise innovative, imaginative, and engaging learning assessment concepts. Embracing the concept of project-based learning provides students with the opportunity to apply their ideas and innovations in practical settings, fostering learning through hands-on experiences and integrating various competencies, particularly the 4C skills. This strategy, ideally suited for middle and high school students due to their developed cognitive abilities, facilitates immersive and experiential learning.

Educators can leverage a diverse range of digital and traditional media, incorporating entertaining gaming strategies into learning evaluations. Additionally, utilizing resources within the learning environment can infuse a distinct ambiance into learning evaluations. At the elementary school level, where students gravitate towards game-based learning to prevent monotony, this approach proves highly effective.

The realization of these concepts relies significantly on the wholehearted support and collaboration of stakeholders and governments. Governments can play a pivotal role by initiating compelling programs that offer students enriching opportunities and experiences, akin to the "Merdeka Belajar Kampus Merdeka" (MBKM) program designed for college students. This support ensures the success of these innovative learning initiatives, fostering an environment where students can thrive and engage deeply with their education.

E. Conclusion

The integration between Islamic religious education and science within 21st-century learning is effectively facilitated through the avenue of learning evaluation. Integrated learning evaluation introduces fresh dimensions to the learning process, rendering assessments more diverse and engaging by transcending the limitations of traditional test and non-test techniques. This underscores how the concept of integrated learning innovates and enriches the landscape of learning evaluations.

⁷⁰ Kurratul Aini and M Ridwan, "Students' Higher Order Thinking Skills Through Integrating Learning Cycle 5E Management with Islamic Values in Elementary School," *AL-TANZIM: Jurnal Manajemen Pendidikan Islam* 5, no. 3 (2021): 142–156.

Integrated learning evaluation comprises two pivotal components: self-evaluation/self-assessment and educators' guidance, both contributing significantly to enhancing learners' skills. Furthermore, the deliberate implementation of the 4C skills—critical thinking, creativity, communication, and collaboration—emphasized in 21st-century learning, dynamically influences and shapes the learning evaluation process, thereby positively impacting learners' cognitive, affective, and psychomotor domains.

In the cognitive realm, the enhancement of 4Cs skills exemplifies critical thinking, creativity, effective communication, and collaborative abilities. On the affective side, learners' demonstration of caring, mature, and religiously-grounded behavior, alongside their adeptness in emotional regulation, signifies significant growth. Meanwhile, in the psychomotor domain, learners actively engage their inner and outer potentials, effectively managing information using various media at their disposal.

Mature thinking among learners fosters conscientious behavior, mitigating the likelihood of engaging in immoral actions spurred by rapid scientific advancements. This highlights the effectiveness of Islamic religious education in mitigating the adverse consequences of swift scientific progress.

Consequently, the integration of Islamic religious education and science in 21st-century learning is crucial for nurturing well-rounded intellectual, professional, and spiritual human resources. This integration within learning evaluations provides students with authentic, real-world experiences while honing their 4C skills, enabling them to competently navigate and meet the demands of the contemporary era.

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