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The Application of Digital Literacy and Ecopedagogy in School Club Implementation for Enhancing School Quality at SDI At-Taubah

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Abstract
This article examines the implementation of digital literacy and ecopedagogy within the school club programs at SDI At-Taubah as a strategic approach to enhancing overall school quality. Based on a qualitative case study, the findings confirm that school club programs are highly effective in developing students' non-academic potential across the fields of STEM, arts, sports, and religion. These programs cultivate 21st-century skills—essential competencies required for success in the information era and global competition—encompassing the 4Cs: critical thinking, creativity, communication, and collaboration. Furthermore, the programs foster additional literacies such as information, media, and technological literacy, as well as adaptability, leadership, initiative, productivity, and social skills. Collectively, these outcomes contribute significantly to the formation of positive character and enhance parental trust in the school. In addition, the school clubs have successfully fostered awareness of Sustainable Development (SD) through environmentally and socially oriented initiatives. This paper conceptualizes these implicit achievements by proposing an explicit and systematic integration of digital literacy to manage the use of technology and ecopedagogy to strengthen ecological and social responsibility. This integrated implementation directly addresses contemporary educational challenges, including character instability, ineffective student time management, and technological misuse. Ultimately, it ensures that the school club programs at SDI At-Taubah serve as a model for developing superior, competent, and globally responsible human resources, thereby enhancing the school's reputation in alignment with the mandate of Education for Sustainable Development (ESD).

Introduction

Indonesian education faces the demand to produce graduates who not only demonstrate strong academic achievement but also possess resilient character, creativity, and social awareness(Siti Masitoh Lubis & Novebri Novebri, 2024). While the intracurricular framework ensures academic rigor, school clubs play a vital role in providing diverse platforms for the development of students' interests and innate talents, as theorized in Multiple Intelligences (Gardner, 1983) and Psychometrics (Zhao, 2019). This extracurricular pathway serves as a crucial medium to prepare students to become creative, adaptive, and socially competent individuals (Agus Mulyana et al., 2023).

However, with the rapid advancement of digital technology, the development of students' interests and talents faces new challenges. Digital technology presents two opposing dimensions in the cultivation of digital literacy. On one hand, it poses significant challenges, such as the increasing number of young people spending an average of five hours per day online—facing exposure to negative content, misinformation, hate speech, and a declining reading culture increasingly displaced by gadgets. On the other hand, it offers vast opportunities through the rise

of the creative economy, the expansion of e-commerce, the creation of new jobs, and the availability of pathways for youth to enhance their digital competencies relevant to 21st-century demands. Nevertheless, such potential requires strong support from families, communities, and the government to ensure that technology use is directed toward personal development and the improvement of life quality (Nasrullah et al., 2017).

Furthermore, the educational landscape has become increasingly complex, marked by alarming trends in negative student behaviors, including deviance, mental health issues, and uncontrolled use of technology (Bakri et al., 2021). These challenges, often exacerbated by environmental and familial factors, underscore the urgent need for school-based strategies that actively guide character formation while constructively channeling students' potential (Eli Masnawati et al., 2023). Family breakdowns also contribute to a range of emotional and behavioral issues—such as anxiety disorders, depression, and declining academic as well as non-academic performance (Fauziah & Nurfarhanah, 2024).

In addition, the challenges of learning in transforming values and knowledge amid the complexities of the digital era and environmental issues necessitate new pedagogical approaches. Through such approaches, the anthropocentric orientation of education can be reversed, humanistic and technical arrogance deconstructed, and the potential for radical transformation in learning, curriculum, policy, and research can emerge as part of a postmodern intellectual exchange aimed at advancing education's contribution to sustainable development (Payne, 2018).

Furthermore, to achieve effective learning and to realize the objectives of developing students' interests and talents through a commitment to utilizing digital literacy for environmental awareness, not only facilities are required, but also well-structured, measurable, planned, and sustainable programs, media, and processes—namely through digital literacy and ecopedagogy programs. The development of school clubs serves as an educational innovation designed to prepare students to become individuals who are not only intellectually intelligent but also creative, adaptive, and socially skilled, while fostering character and social values such as honesty, fairness, responsibility, and courtesy (Yanti & Sya, 2024).

Schools provide a platform for the development of students' interests and talents, which is expected to align with their potential in a more directed and purposeful manner, ultimately generating positive impacts such as enhancing creativity, strengthening character, improving social interaction, and contributing positively to both the environment and the overall quality of the school (Noviani et al., 2025).

In this regard, SDI At-Taubah has proactively responded to these conditions since 2019 through the optimization of its school club programs, with the expectation that such initiatives will foster students' non-academic potential, nurture 21st-century skills, improve student outcomes, and enhance stakeholder trust, all of which culminate in the overall improvement of school quality.

The quality of a school, as a service-oriented institution, is determined by its ability to achieve educational goals and earn public trust. A school lacking in quality will find it difficult to compete and gain recognition; therefore, maintaining quality must be the primary focus to ensure the school's existence, competitiveness, and contribution to national intellectual development. Quality represents a dynamic condition encompassing products, services, people, processes, and environments capable of meeting or even exceeding the expectations of all stakeholders involved in educational management (Siska, Ela, 2019). Quality is defined as complete customer satisfaction, where a product or service is deemed of high quality if it successfully meets consumers' expectations throughout the entire process (Dr. H. Sukirman, et al., 2023).

Enhancing school quality through club programs indirectly aligns with the concept of Education for Sustainable Development (ESD), which encompasses all dimensions of growth: social, emotional, intellectual, physical, moral, and others. ESD enables students to acquire the skills, knowledge, and values necessary for a successful life and constructive contribution to society (Lamanauskas & Malinauskienė, 2024). Its ultimate objective is the realization of the Sustainable Development Goals (SDGs), particularly Goal 4 on Quality Education, moving toward the establishment of Eco-Schools initiatives designed to empower children to address

environmental issues within their communities. The success of Eco-Schools in fostering children's participation in positive environmental change has been well-documented in studies across both developed and developing nations (Chineka & Yasukawa, 2020).

This study introduces an integrative model of digital literacy and ecopedagogy through elementary school club programs as a quality management strategy grounded in ESD principles. The model not only develops 21st-century competencies but also cultivates ecological character and social responsibility among students in a systematic and measurable manner.

The novelty of this research lies in its comprehensive integration of several innovative dimensions. First, it offers a conceptual synthesis between digital literacy and ecopedagogy within the context of school club programs. This approach is relatively new because previous studies generally applied these two frameworks separately, either in intracurricular activities or in thematic environmental programs, whereas this study unites them as a strategic effort to enhance the quality of basic education.

Furthermore, the research reconceptualizes school clubs by transforming them into a sustainable learning model grounded in Education for Sustainable Development (ESD). In this perspective, school clubs are no longer viewed merely as platforms for talent development but as structured spaces for cultivating ecological awareness and digital literacy. This redefinition positions them as non-formal learning systems oriented toward sustainable development, representing a significant educational innovation.

Another contribution of this study is its development of a school management approach that embeds literacy and ecological principles as part of quality enhancement. By positioning school clubs as managerial instruments of quality assurance rather than supplementary activities, the study highlights their strategic role in connecting character development, creativity, and socio-ecological responsibility with the strengthening of public trust in schools.

This research also expands the empirical scope of digital literacy and ecopedagogy by applying them within an Islamic elementary school context. Such settings integrate religious values with ecological awareness and digital competencies, an area that has received limited attention in prior studies, thereby demonstrating the applicability and effectiveness of these concepts in faith-based educational environments.

Lastly, the study introduces a new evaluative framework for assessing the impact of club programs on school quality. It formulates a set of evaluative indicators that link the development of 4C skills—critical thinking, creativity, communication, and collaboration—and digital-eco awareness with improvements in school quality and stakeholder trust. This evaluative connection has rarely been explored in previous research, underscoring the originality of the study's contribution.

The objective of this study is to analyze the implementation of digital literacy and ecopedagogy within the operation of school club programs at SDI At-Taubah and to assess their contribution to improving school quality. Specifically, the study focuses on identifying the forms of implementation, analyzing the synergy between the two approaches, and formulating a strategic model based on Education for Sustainable Development (ESD) that can be replicated in other elementary education institutions.

Method

The research employed a qualitative approach with a case study design conducted at SDI At-Taubah. Data were collected through participatory observation, in-depth interviews with foundation administrators, the principal, supervising teachers, club coordinators, students, and parents, as well as through document analysis related to school policies, club programs, and achievements. Data analysis was performed using source and method triangulation techniques and followed the Miles and Huberman model, which includes four interrelated activities: data reduction, data display, conclusion drawing, and verification (Sulistyawati, 2023).

Field observations were conducted from September 10 to 19, 2025, at SDI At-Taubah Jakarta, located on Jalan Pulomas Barat V, Kayu Putih, East Jakarta. The implementation of this study consisted of three main stages: (1) Interviews, (2) Observation, and (3) Documentation. In

addition, this qualitative study utilized various relevant reference sources, including books, accredited journals, articles, and other scholarly materials (Dr. H. Nazar Naamy, 2019).

Results and Discussion

Integration of Digital Literacy in School Club Activities

The implementation of digital literacy within school club activities at SDI At-Taubah demonstrates a strategic role in fostering 21st-century competencies and strengthening educational quality. According to Paul Gilster (1997), digital literacy is the ability to understand and utilize information from various sources through computers. Similarly, Bawden (2001) emphasizes the technical skills involved in accessing, organizing, comprehending, and disseminating information. Douglas A. J. Belshaw (2011) further identifies eight essential elements of digital literacy—cultural, cognitive, constructive, communicative, confident, creative, critical, and socially responsible (Nasrullah et al., 2017). The successful implementation of digital literacy in schools is influenced by individual readiness, institutional support, and the availability of technological infrastructure (Ndibalema, 2025).

Digital literacy is broadly defined as a life skill encompassing the ethical use of technology, information, communication, and online behavior (Purnama et al., 2021). In practice, school clubs serve as experiential learning platforms that cultivate critical thinking, creativity, and collaboration. For students, digital literacy enables them to discern credible information, avoid plagiarism and misinformation, and uphold digital ethics. For teachers, digital literacy forms the foundation of professional teaching practices, supporting creativity, communication, and collaboration (Ma'rufah Rohmanurmeta et al., 2024).

In the context of SDI At-Taubah, curriculum reform and the provision of digital infrastructure represent key strategies for preparing students to engage with the global era. To support this initiative, a digital platform called SIKAP (Sistem Informasi dan Komunikasi At-Taubah Pulomas) was developed as an integrated information and communication system connecting all stakeholders ranging from foundation administrators, management teams, principals, teachers, and students to parents. SIKAP facilitates the coordination of academic, administrative, and extracurricular activities within a unified digital ecosystem.

Concrete examples of digital literacy implementation within school clubs include:

a. Productive Engagement: Transforming "gadget addiction" into meaningful activities—for instance, the science club utilizing data visualization software to analyze pollution patterns or the debate club critically examining global news through online research (Lankshear & Knobel, 2015).
b. Cyber Ethics and Safety: Integrating modules on responsible online behavior, media evaluation, and misinformation counter-strategies (Hobbs, 2010; UNESCO, 2018). Through these initiatives, students not only develop technical proficiency but also cultivate ethical awareness and social responsibility in their use of digital technologies.

Implementation of Ecopedagogy in the Club Curriculum

Ecopedagogy is rooted in Paulo Freire's philosophy of popular education and critical pedagogy, emphasizing human awareness and transformation in relation to nature (Misiaszek, 2023). This approach encourages students to think reflectively, critically, and responsibly toward the environment. According to (Durrotun Nafisah et al., 2019), ecopedagogy is an educational approach that fosters ecological awareness through critical reflection on the environmental impacts of technology. Its implementation at SDI At-Taubah is focused on three key domains: technical ecoliteracy, critical ecoliteracy, and cultural ecoliteracy.

The integration of ecopedagogical values is carried out through:

a. Contextualization: Connecting each club project with relevant social and environmental issues. For instance, the art club creates murals with water conservation themes, while the leadership club organizes community clean-up campaigns aligned with the Sustainable Development Goals (SDGs) (Chineka & Yasukawa, 2020).

b. Action Learning: Encouraging students to act as environmental stewards through service-learning activities that nurture collective responsibility for sustainability (Lamanauskas & Malinauskienė, 2024). Thus, ecopedagogy expands the meaning of learning beyond the classroom, transforming it into a lived experience grounded in socio-environmental justice.

Impact on School Quality and Student Development

The Role of Schools in Fostering Students' Interests and Talents

Schools play a central role in nurturing students' interests and talents so that they grow into intelligent, ethical, and competitive individuals (Eli Masnawati et al., 2023). Club activities are designed as complementary extensions of intracurricular learning and as channels for students to optimally express and develop their potential. (Wai & Lovett, 2021) argue that variations in students' interests and talents can be linked to diverse fields of innovation, such as STEM, humanities, business, and the arts. Through club activities such as robotics, coding, and art, students are provided opportunities to refine creativity, leadership, and soft skills relevant to future demands (Didit, 2022).

From a structural-functional perspective (Talcott Parsons, 1950), school clubs fulfill four social functions encapsulated in the AGIL framework: Adaptation, Goal Attainment, Integration, and Latency. These functions establish clubs as essential spaces for character formation and social equilibrium within the educational environment (Eli Masnawati et al., 2023). Adaptation is reflected in students' ability to adjust to various situations and environmental changes. Goal Attainment manifests when students learn to set objectives, practice perseverance, and strive for desired achievements. Integration is observed in their capacity to interact and collaborate within groups that share similar interests and goals. Latency represents the process of developing students' interests, talents, and potential through meaningful club activities that support personal growth and holistic development.

Club Activities and School Quality for Sustainable Development

Schools that implement a quality management system based on club activities demonstrate improved student and parent satisfaction, as well as the production of more competent graduates (Maswadi et al., 2025). Through the framework of Education for Sustainable Development (ESD), SDI At-Taubah positions school clubs as a medium for cultivating sustainability-oriented values. Students are encouraged to become agents of change who uphold environmental justice ((Cerlin et al., 2024; Goraş-Postică, 2023). The outcomes are evident in the increased environmental awareness and pro-environmental behaviors of students (Smith, 2019), positioning the school not merely as an academic institution but also as a center for ecological character formation.

Implementation of Club Programs at SDI At-Taubah

Since 2019, SDI At-Taubah has developed eight flagship clubs, including Robotics, Coding, Math Club, English Club, Archery, Swimming, Roller Skating, and Animation. The number of participants has grown significantly from 96 students in 2019 to 335 students in September 2025, accompanied by an increase in student achievements from 40 to 130 awards at regional and international levels. Several key factors have contributed to this success, including participatory foundation policies, the involvement of certified professional tutors, and the integration of club activities into the school's character education and soft skills development curriculum.

Based on interviews with the Foundation and school management, policy formulation begins with proposals from the Education Division, which are subsequently approved by the Chairperson of the Foundation's Board. The decision is then communicated to the principal, who conducts a socialization meeting and a public hearing with the school committee and parent representatives from each class. These sessions determine the types of clubs, training programs, fees, selected vendors or professional tutors, and the competitions to be attended—each integrated with formal educational activities after school hours.

Documentary analysis of the extracurricular and club program planning reports reveals that SDI At-Taubah has five categories of extracurricular activities, encompassing 15 extracurricular programs and 8 clubs open to student participation, as follows:

a. STEM Category: Robotics, Coding, Animation, Math Club, and Science.
b. Arts Category: Dance, Music, Painting, Percussion, Marawis, and Vocal.
c. Sports Category: Roller Skating, Archery, Swimming, Futsal, Basketball, Taekwondo, Pencak Silat, and Karate.
d. Religious Category: Tahfiz (Qur'an memorization) and Qiroah (Qur'anic recitation).
e. Language Category: English and Mandarin.

The distinction between extracurricular activities and school clubs lies in several aspects:

a. Implementation: School clubs are conducted with the involvement of professional vendors who possess specialization, certification, and broad national and international networks, often targeting international-level achievements. In contrast, extracurricular programs may be facilitated by teachers or certified trainers without necessarily belonging to formal associations related to their respective fields.
b. Funding: Students participating in school clubs are required to pay IDR 3,600,000 per year per club plus a registration fee of IDR 200,000 (applicable to Roller Skating, Archery, Swimming, Math Club, English Club, Robotics, Animation, and Coding). Meanwhile, extracurricular programs cost IDR 1,500,000 per year, allowing students to join up to four categories outside the official clubs.

From 2019 to 2025, with a total of 735 students, participation and achievement levels have shown a significant upward trend, as summarized in the table below:

Table 1
Data on the Growth of Club Membership and Achievements between 2019 and 2025

No	Year	Number of Club Participants	Number of Achievements
1	2019	96	40
2	2020	125	78
3	2021 (Covid)	80	35
4	2022	189	87
5	2023	245	103
6	2024	289	122
7	Up to September 2025	335	130

The data indicate a consistent annual increase in student participation, which is directly proportional to the number of achievements attained. This trend confirms that the club-based quality system effectively enhances both student engagement and institutional performance in alignment with the principles of sustainable education.

c. The Role of School Clubs in Student Development and Character Formation
   - Potential Identification: Supervising teachers identify and nurture students' talents, enabling them to achieve recognition at national and international levels.
   - Soft Skills Enhancement: Club activities cultivate collaboration, responsibility, independence, and leadership.
   - Learning Motivation: Participation in clubs increases student engagement and enthusiasm for learning, as the activities align with their personal interests.

d. The Contribution of Clubs to School Quality Improvement

Increased Non-Academic Achievements: Success in fields such as robotics, sports, religion, and the arts enhances the school's overall reputation.

   - Character Building: Club participation shapes students to become religious, disciplined, and responsible individuals.
   - Positive Learning Environment: A culture of healthy competition fosters an active and dynamic learning ecosystem.
   - Enhanced Parental Satisfaction: Club involvement builds parents' trust and loyalty toward the institution.

- High-Quality Graduates: Many students are admitted to top-tier secondary schools through achievement-based pathways.

e. The Contribution of Clubs to Sustainable Development

School clubs at SDI At-Taubah have successfully fostered:

- Environmental Awareness and Healthy Lifestyles: The school was recognized as the East Jakarta Model Healthy School in 2024.
- Creativity and Innovation: Students develop practical solutions to social and environmental problems.
- Development of Excellent Human Resources: Graduates exhibit strong character, digital literacy, and environmental consciousness.

Enhancement of 21st-Century Competencies and Character

The implementation of digital literacy and ecopedagogy transforms club activities from mere extracurricular entertainment into purposeful educational interventions. According to the Association of College and Research Libraries (ACRL, 2000), digital literacy is defined as the ability to use digital information and communication technologies to locate, comprehend, evaluate, create, and communicate digital information—a capability that requires both cognitive and technical skills (Mbandje & Loureiro, 2023). Meanwhile, ecopedagogy provides the moral and social framework that underpins 21st-century competencies (Eli Masnawati et al., 2023).

Table 2
Impact on Quality Improvement

Focus of Implementation	Example of Club	Impact on Quality Improvement
Digital Literacy	Robotics / Coding	Produces competent digital innovators and enhances STEM achievement (Noviani et al., 2025).
Ecopedagogy	Environmental Journalism	Cultivates critical social awareness; students become advocates for local sustainability issues (Chineka & Yasukawa, 2020).
Integrated Approach	Digital Art for Campaigns	Promotes creative and technical expression in environmental campaigns

Strategic Alignment with SDGs and School Reputation

The formal adoption of ecopedagogy has transformed environmental initiatives from incidental actions into strategic and sustainable programs, aligning with SDG 4 (Quality Education) and SDG 13 (Climate Action) (Lamanauskas & Malinauskienė, 2024). This holistic approach—integrating technology, character education, and social responsibility—has strengthened stakeholder trust and positioned SDI At-Taubah as a model institution in club-based quality development.

Conclusions

The implementation of digital literacy and ecopedagogy within school club activities at SDI At-Taubah has proven to enhance the overall quality of education comprehensively. These two approaches cultivate students who are technologically proficient, critical, and digitally ethical; environmentally aware and socially responsible; academically and non-academically accomplished; and possess strong character, creativity, and collaboration skills. The integration of these paradigms demonstrates that a club-based educational model serves as an effective strategy for building a sustainable learning ecosystem aligned with 21st-century education principles and the Sustainable Development Goals (SDGs).

The success of the club programs at SDI At-Taubah provides compelling evidence that the systematic application of Digital Literacy and Ecopedagogy can function as a core strategy for improving school quality. This integrated framework optimizes the potential of extracurricular

activities, transforming them into powerful pedagogical tools that address 21st-century learning demands—ranging from technical competencies and ethical technology use to profound social and environmental responsibility. By harmonizing these two approaches, SDI At-Taubah has successfully nurtured students' interests and talents, mitigated negative behavioral trends, and strategically aligned itself with the global mandate for Sustainable Development, thereby establishing a robust and verifiable model of educational excellence.

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References

Agus Mulyana, Auliadi Auliadi, Iga Ghufrani Juniarti, & Ramanda Putri Mardiyyana. (2023). Peran Positif Kegiatan Ekstrakurikuler di Lingkungan Sekolah Dasar Bagi Peserta Didik. *Khirani: Jurnal Pendidikan Anak Usia Dini*, *1*(4), 171–177. https://doi.org/10.47861/khirani.v1i4.650

Bakri, A. R., Sutrisno, S., & Mushafanah, Q. (2021). Nilai Karakter Siswa pada Kegiatan Ekstrakurikuler. *Indonesian Values and Character Education Journal*, *4*(1), 1–6. https://doi.org/10.23887/ivcej.v4i1.29811

Cerlin, A., Utami, G. D., & Iswara, S. (2024). Peran Ekstrakurikuler dalam Pembentukan Karakter Siswa MTsN 3 Subang. *Journal of Education Research*, *5*(1), 450–459. https://doi.org/10.37985/jer.v5i1.855

Chineka, R., & Yasukawa, K. (2020). Intergenerational learning in climate change adaptations; limitations and affordances. *Environmental Education Research*, *26*(4), 577–593. https://doi.org/10.1080/13504622.2020.1733494

Didit, N. (2022). Pembentukan Karakter Siswa Melalui Kegiatan di Sekolah dan Peran Guru. *Jurnal Pendidikan Tambusai*, *6*(1), 2251–2260. https://jptam.org/index.php/jptam/article/view/3267%0Ahttps://jptam.org/index.php/jptam/article/download/3267/2742

Dr. H. Nazar Naamy, M. S. (2019). Metodologi Penelitian Kualitatif Dasar-dasar & Aplikasinya. In *Rake Sarasin* (Issue Juni).

Dr. H. Sukirman, M. P., Dr. Suyono, S.Pd., M. P., & Dr. Achadi Budi Santosa, M. P. (2023). *Manajemen Pendidikan Mutu Terpadu*.

Durrotun Nafisah, Dewi Liesnoor Setyowat, Eva Banowat, & Agustinus Sugeng Priyanto. (2019). Pendidikan Berbasis Ekopedagogik Dalam Pembelajaran IPS DiEra New Normal. *Prosiding Seminar Nasional Pascasarjana UNNES*, *19*(2019).

Eli Masnawati, Didit Darmawan, & Masfufah Masfufah. (2023). Peran Ekstrakurikuler dalam Membentuk Karakter Siswa. *PPIMAN Pusat Publikasi Ilmu Manajemen*, *1*(4), 305–318. https://doi.org/10.59603/ppiman.v1i4.347

Fauziah, R., & Nurfarhanah, N. (2024). Studi kasus: dampak broken home terhadap prestasi belajar siswa di madrasah aliyah negeri. *Journal of Counseling, Education and Society*, *5*(1), 12. https://doi.org/10.29210/08jces398000

Goraș-Postică, V. (2023). The contribution of quality management to the efficiency of education for sustainable development. *Journal of Educational Sciences*, *48*(2), 5–18. https://doi.org/10.35923/jes.2023.2.01

Lamanauskas, V., & Malinauskienė, D. (2024). Education for sustainable development in primary school: Understanding, importance, and implementation. *European Journal of Science and Mathematics Education*, *12*(3), 356–373. https://doi.org/10.30935/scimath/14685

Ma'rufah Rohmanurmeta, F., Susilo, H., Zainuddin, M., & Hadi, S. (2024). The digital technology literacy profiles of students as prospective elementary school teachers. *Cogent Education*, *11*(1). https://doi.org/10.1080/2331186X.2024.2332839

Maswadi, K., Asnawi, R., & Rahwat. (2025). Manajemen Pengendalian Mutu Sekolah : Kajian Literasi Tentang Model Pelaksanaan Pengendalian Mutu. *Fai Uim*, *6*(1), 13–23.

Mbandje, D. C., & Loureiro, M. J. (2023). Digital competence and information literacy: clarifying concepts based on a literature review. *Educational Media International*, *60*(3–4), 306–316. https://doi.org/10.1080/09523987.2023.2324584

Misiaszek, G. W. (2023). Ecopedagogy: Freirean teaching to disrupt socio-environmental injustices, anthropocentric dominance, and unsustainability of the Anthropocene. *Educational Philosophy and Theory*, *55*(11), 1253–1267. https://doi.org/10.1080/00131857.2022.2130044

Nasrullah, R., Aditya, W., Satya, T. I., Nento, M. N., Hanifah, N., Miftahussururi, & Akbari, Q. S. (2017). Materi Pendukung Literasi Digital. *Kementerian Pendidikan Dan Kebudayaan*, 43. http://gln.kemdikbud.go.id/glnsite/wp-content/uploads/2017/10/literasi-DIGITAL.pdf

Ndibalema, P. (2025). Digital literacy gaps in promoting 21st century skills among students in higher education institutions in Sub-Saharan Africa: a systematic review. *Cogent Education*, *12*(1). https://doi.org/10.1080/2331186X.2025.2452085

Noviani, N., Rusdan, H., & Habib, S. (2025). Peran Kegiatan Ekstrakurikuler dalam Membentuk Karakter Siswa di Lembaga Pendidikan Islam. *Jurnal Intelek Insan Cendikia*, *2*(6), 11253–11263.

Payne, P. G. (2018). Ecopedagogy as/in scapes: Theorizing the issue, assemblages, and metamethodology. *Journal of Environmental Education*, *49*(2), 177–188. https://doi.org/10.1080/00958964.2017.1417228

Purnama, S., Ulfah, M., Machali, I., Wibowo, A., & Narmaditya, B. S. (2021). Does digital literacy influence students' online risk? Evidence from Covid-19. *Heliyon*, *7*(6), e07406. https://doi.org/10.1016/j.heliyon.2021.e07406

Siska, Ela, D. (2019). Manajemen Mutu Terpadu (Teguh Sriwidadi) MANAJEMEN MUTU TERPADU. *Journal The WINNERS*, *2*, 107–115. https://osf.io/ukvgm/download

Siti Masitoh Lubis, & Novebri Novebri. (2024). Implementasi Kegiatan Ekstrakulikuler terhadap Pendidikan Karakter Siswa di SMA Negeri 1 Panyabungan. *Edukasi Elita : Jurnal Inovasi Pendidikan*, *2*(1), 228–241. https://doi.org/10.62383/edukasi.v2i1.1020

Smith, W. (2019). The role of environment clubs in promoting ecocentrism in secondary schools: student identity and relationship to the earth. *Journal of Environmental Education*, *50*(1), 52–71. https://doi.org/10.1080/00958964.2018.1499603

Sulistyawati. (2023). Penelitian Kualitatif : Metode Penelitian Kualitatif. In *Jurnal EQUILIBRIUM* (Vol. 5, Issue January). http://belajarpsikologi.com/metode-penelitian-kualitatif/

Wai, J., & Lovett, B. J. (2021). Improving gifted talent development can help solve multiple consequential real-world problems. *Journal of Intelligence*, *9*(2). https://doi.org/10.3390/jintelligence9020031

Yanti, S. D., & Sya, M. F. (2024). Inovasi Pendidikan dalam Kegiatan Ekstrakurikuler

untuk Menumbuhkan Karakter siswa. *Karimah Tauhid*, *3*(1), 981–988. https://doi.org/10.30997/karimahtauhid.v3i1.11123

Zhao, Y. (2019). The Rise of the Useless: the Case for Talent Diversity. *Journal of Science Education and Technology*, *28*(1), 62–68. https://doi.org/10.1007/s10956-018-9743-3