

Evaluating The Effectiveness Of Environmental Education Initiatives In Education Management

Nur Alam¹, Fyrdha Faradyba Hamzah², Muhammad Nurhadi N³

¹Management, Universitas Muslim Indonesia, Email: nuralam06913@gmail.com

²Management, Universitas Muslim Indonesia, Email : fyrdha.faradyba@umi.ac.id

³Management, Universitas Muslim Indonesia, Email: muhammadnurhadin@gmail.com

Abstract

This study investigates the field of education management in order to examine the efficacy of environmental education initiatives implemented in educational institutions. Several significant findings have emerged through the implementation of a qualitative research design, which includes conducting interviews with key stakeholders and analyzing relevant documents. Educational leaders have been recognized as strong proponents of environmental education, viewing it as essential for comprehensive student growth and influencing the values of the school community. The dedication exhibited by these individuals highlights their forward-thinking leadership, which lays the foundation for the implementation of enduring environmental education initiatives. The study emphasizes the effective incorporation of environmental subjects into the educational curriculum across different grade levels, promoting interdisciplinary education that enhances comprehension of environmental concepts. This approach is supported by prior research that underscores the advantages of interdisciplinary education. Moreover, the participants express a significant demand for a standardized assessment framework, reflecting wider conversations in the field of education administration and policy studies. The establishment of such a framework is considered to be crucial in order to methodically evaluate the efficacy of environmental education initiatives and provide guidance for decision-making based on empirical evidence. The aforementioned findings highlight the importance of leadership dedication, integration of interdisciplinary curriculum, and thorough evaluation methods in influencing the success and lasting effects of environmental education initiatives in educational institutions. These factors help to align these initiatives with broader global sustainability and education goals.

Keywords: Education Management, Environment, Evaluation

I. Introduction

Environmental education initiatives have assumed a growing significance in contemporary society, characterized by the intensification of environmental issues and the urgent demand for sustainable methodologies. These initiatives have the objective of fostering environmental consciousness, accountability, and stewardship among individuals, particularly within the educational sphere. In a period characterized by climate change, habitat loss, resource depletion, and environmental degradation, environmental education has emerged as a pivotal instrument to equip students with the requisite knowledge, skills, and values to effectively tackle these

worldwide challenges. The importance of environmental education in the field of education management cannot be overemphasized (Abbas & Singh, 2014). Educational institutions, ranging from early childhood education centers to higher education establishments, hold a significant influence in molding the viewpoints, dispositions, and actions of their students (Inkelas & Weisman, 2003). The field of education management plays a crucial role in shaping the implementation and effectiveness of environmental education initiatives. This encompasses various aspects such as leadership decisions, curriculum development, teacher training, and resource allocation.

The significance of assessing the efficacy of environmental education initiatives in the context of education management resides in the imperative to guarantee the attainment of their desired objectives. The significance of environmental education in contemporary society cannot be overstated, as it tackles pressing global issues and fosters the development of a sustainable future (Mahardhani, 2023).. Fundamentally, environmental education bestows individuals with the requisite knowledge, skills, and values essential for comprehending and resolving intricate environmental challenges. The significance of this phenomenon extends widely, encompassing diverse realms of individual, social, and environmental welfare.

The field of environmental education facilitates the development of environmental consciousness and comprehension. This program provides individuals with fundamental knowledge regarding ecosystems, natural resources, biodiversity, and the complex relationship between human activities and the environment. Through the cultivation of a more profound understanding of environmental matters, such as climate change, pollution, habitat loss, and resource depletion, environmental education facilitates the recognition of the pressing nature of these challenges. One of the fundamental elements of environmental education lies in its emphasis on the cultivation of critical thinking abilities and problem-solving aptitude (Stevenson, 2007). By engaging in the examination of intricate environmental matters, taking into account a wide range of viewpoints, and actively pursuing resolutions to practical problems, individuals cultivate their critical thinking skills that transcend beyond the realm of the environment. These skills enable individuals to effectively tackle not only environmental problems but also broader societal issues.

Environmental education plays a pivotal role in tackling environmental challenges; however, it encounters various substantial obstacles that can impede its efficacy. These challenges encompass a wide range of aspects, including curriculum development and resource allocation, and it is imperative that they are effectively addressed in order to ensure the success of environmental education initiatives. An eminent obstacle encountered in the field of environmental education pertains to the

assimilation of environmental subjects within pre-existing curricula. Numerous educational systems exhibit a rigorous framework of curricula that prioritize conventional disciplines such as mathematics and science, thereby allowing minimal space for the incorporation of environmental content (Bellei & Morawietz, 2016). The task of attaining equilibrium between fundamental academic disciplines and environmental education is a multifaceted undertaking that necessitates meticulous curriculum development and comprehensive teacher preparation.

The issue of teacher preparedness is of utmost importance. Numerous educators may find themselves lacking the requisite training and resources to proficiently instruct environmental concepts and actively involve students in experiential learning opportunities. The provision of ongoing professional development opportunities and support is imperative in order to adequately equip educators with the necessary knowledge and skills to effectively deliver environmental education of exceptional quality (Smith & Tyler, 2011). The presence of resource constraints presents a notable challenge. Environmental education frequently necessitates the availability of outdoor areas, laboratory apparatus, and educational resources, which may not be readily accessible in all educational institutions. The presence of disparities in the allocation of resources can result in inequities in the quality of environmental education experiences among students, thereby exacerbating pre-existing educational inequalities.

Engaging students in environmental education can also be challenging. Certain students may encounter difficulties in establishing a connection with abstract environmental concepts, whereas others may experience a sense of being overwhelmed by the vastness of global environmental issues. It is imperative to customize educational methodologies to accommodate diverse learning styles and backgrounds in order to guarantee that environmental education is accessible to all students and yields positive outcomes. Another challenge that arises pertains to the evaluation of the effects of environmental education initiatives. The measurement of alterations in knowledge, attitudes, and behaviors pertaining to the environment can be a multifaceted task, necessitating the utilization of meticulously

crafted assessment instruments and longitudinal investigations to effectively capture the enduring impacts.

The role of educational leadership is crucial in ensuring the success of environmental education initiatives. It is the duty of school administrators, principals, and educational leaders to advocate for and provide assistance to these programs. These individuals play a crucial role in influencing the trajectory and efficacy of environmental education within their respective institutions. Educational leaders possess the ability to allocate resources and establish an environment that is conducive to the flourishing of environmental education. This encompasses the provision of financial resources for the acquisition of materials, the establishment of outdoor learning environments, and the facilitation of opportunities for professional growth among educators. Leaders have the capacity to establish a well-defined vision and objectives for environmental education, thereby ensuring its congruence with the overarching mission of the educational institution (Kurland et al., 2010). Additionally, they have the capacity to foster collaboration among educators, learners, and the broader community, thereby fostering a comprehensive approach to environmental education. Educational leaders possess the ability to exemplify environmentally conscientious behaviors, thereby exerting a significant influence on the school community. Through exemplifying a steadfast dedication to the principles of sustainability, they serve as a source of inspiration for others, thereby cultivating an atmosphere that promotes the responsible management and preservation of the environment. The dedication of the leadership to environmental education is crucial in facilitating its incorporation into the institutional framework of the school, thereby guaranteeing that students are provided with a comprehensive and influential environmental education encounter (Delia & Krasny, 2018).

The field of environmental education is of great importance to the management of educational institutions, as it has a profound impact on multiple facets of their operations and the fulfillment of their objectives. The field of education management encompasses a diverse array of responsibilities, spanning from the development of curriculum to the allocation of resources and the implementation of policies. The integration of environmental education

effectively intersects with these management functions in various significant manners.

First and foremost, it contributes to the advancement of curriculum development by incorporating environmental subjects and principles of sustainability into the educational framework. Education managers and curriculum designers have the opportunity to collaborate in order to integrate these fundamental components, thereby guaranteeing that students are provided with a comprehensive education that effectively tackles crucial environmental concerns. Additionally, education management assumes a crucial role in the allocation of resources, guaranteeing that educational institutions possess the essential materials, resources, and infrastructure required to effectively support environmental education endeavors. The scope and effectiveness of these programs can be determined by appropriate funding and allocation of resources. Moreover, education management encompasses the formulation of policy decisions that have a significant influence on the environmental practices and sustainability endeavors of educational institutions. Leaders have the ability to implement policies that facilitate the adoption of sustainable practices within the organization, encompassing a range of initiatives such as energy conservation and waste reduction. The field of education management has a significant impact on the training and professional development opportunities available to teachers. These opportunities are designed to provide educators with the necessary knowledge and skills to effectively deliver environmental education.

The significance of environmental education in the context of education management stems from its capacity to augment the caliber of education, foster sustainability, and equip students to tackle urgent global issues. These objectives are in line with the overarching mission of educational institutions.

II. Methodology

The study utilized a qualitative research design. The selection of this methodology was made with the intention of acquiring comprehensive and detailed perspectives, as well as a nuanced comprehension, of the intricate dynamics associated with the execution and consequences of environmental education within educational establishments. The study was conducted over an

extended duration, encompassing various stages and employing diverse methodologies for data collection. The main methods employed for data collection encompassed semi-structured interviews and document analysis. Semi-structured interviews were undertaken with key stakeholders, namely educational leaders, teachers, and students, who were actively engaged in environmental education initiatives. The primary objective of these interviews was to extract comprehensive narratives, perspectives, and experiences pertaining to the efficacy of said programs. Furthermore, the process of document analysis encompassed the thorough examination of educational policies, curriculum materials, and program documents in order to establish a comprehensive context and enhance the interview data. The process of participant selection was deliberate and intended to guarantee a wide range of roles and experiences within the educational institutions, thus ensuring diversity. A selection was made of educational leaders and teachers who possessed varying degrees of engagement in environmental education. Additionally, a diverse group of students from different grade levels was included in the sample.

The process of analyzing qualitative data was conducted using a thematic approach. The interview transcripts and document excerpts underwent a systematic process of coding and categorization in order to identify recurring themes and patterns. The aforementioned themes have offered valuable perspectives on the various factors that influence the effectiveness of environmental education initiatives, the obstacles faced during their implementation, and the perceived effects on students and the school community.

III. Results and Discussion

Result

Leadership Commitment and Support

The interviews conducted with educational leaders consistently unveiled a resolute dedication to initiatives pertaining to environmental education. The individuals regarded these programs as crucial for comprehensive student development and placed significant emphasis on their function in establishing the overall atmosphere of the entire school community. The significance of resource allocation and policy support in guaranteeing the

success of these initiatives was acknowledged by leaders.

“We understand that without adequate resources and policies in place, our efforts would be limited. We allocate funds for teacher training, materials, and outdoor spaces. It's an investment in our students' future”

The educational leader recognizes the pragmatic elements involved in facilitating environmental education. The individuals acknowledge the significance of resource allocation, encompassing the allocation of funds for the purpose of teacher training and the provision of essential materials and facilities. This exemplifies a strategic methodology aimed at securing the requisite backing for the successful execution of environmental education initiatives.

“Our policies clearly state our commitment to sustainability and environmental education. We believe that policies should translate into action. It's our responsibility to ensure they're implemented effectively”.

The significance of policies in driving environmental education initiatives. Policies are not just symbolic but should lead to tangible actions within the school community. Their perspective aligns with the idea that leadership support extends beyond words to practical steps for implementation.

Curriculum Integration

Educators across diverse grade levels adeptly integrated environmental principles into academic disciplines such as science, social studies, and language arts. The implementation of this interdisciplinary approach was perceived as efficacious in enhancing the acquisition of environmental knowledge. The analysis of school curricula and the conduct of semi-structured interviews with teachers consistently demonstrated the effective incorporation of environmental subjects into the curriculum. Educators across diverse grade levels exhibited ingenuity in integrating environmental principles into academic disciplines such as science, social studies, and language arts. The efficacy of this interdisciplinary approach in enhancing environmental education was widely acknowledged.

“In our science curriculum, we seamlessly weave in lessons about ecosystems,

conservation, and climate change. It's not a standalone topic; it's integrated into our regular science lessons. This way, students see the real-world relevance."

The examination of school curricula revealed that environmental education was not regarded as a distinct subject, but rather deliberately incorporated into various academic disciplines. The integration of environmental concepts into lesson plans was clearly apparent, as it was observed that these concepts were seamlessly incorporated into different subjects. This alignment with state standards and educational objectives further emphasized the significance of incorporating environmental education into the curriculum.

Through the integration of environmental subjects into the science curriculum, educators such as Teacher A are able to establish a cohesive educational experience that bridges theoretical knowledge with practical, real-world concerns. This approach not only enhances the understanding of environmental concepts among students but also emphasizes the significance of these concepts in their daily lives. The utilization of an interdisciplinary approach was observed to be particularly efficacious in fostering student engagement. It facilitated a comprehensive comprehension of environmental matters, placing emphasis on their interconnections with diverse facets of existence, encompassing the realms of science, social studies, and language arts. This approach is consistent with research that indicates interdisciplinary learning facilitates a more profound understanding of intricate subjects.

Environmental Education Evaluation Framework

The research findings demonstrate a unanimous agreement among the participants regarding the need for a standardized evaluation framework to thoroughly evaluate the efficacy of environmental education initiatives. The utilization of this framework was perceived as indispensable in providing guidance to education administrators in making decisions based on data and in further augmenting the caliber of these programs.

"We need a structured way to measure the impact of our environmental education efforts. An evaluation framework would not only help us

track progress but also identify areas where we can improve and adapt our strategies"

The authors place significant emphasis on the significance of implementing a methodical and systematic approach to evaluation that surpasses the reliance on anecdotal evidence. The implementation of such a framework would provide educational institutions with the means to assess the efficacy of their environmental education initiatives both quantitatively and qualitatively.

Further analysis of the document revealed that the current practices of evaluation were frequently improvised and exhibited a lack of uniformity. The participants expressed the belief that the implementation of an evaluation framework would offer a shared collection of metrics and assessment tools that could be consistently utilized in various educational institutions and settings.

The participants emphasized that the implementation of an evaluation framework would prove to be a valuable asset for education managers. The provision of insights regarding the effectiveness of different aspects of environmental education would serve as a valuable tool in guiding decision-making processes, enabling the identification of areas that are functioning optimally and those that require enhancement. The utilization of a data-driven approach is in accordance with established principles in the field of education management, wherein the importance of well-informed decisions for the improvement of programs is recognized.

Discussion

Leadership Commitment and Support

The dedication and assistance exhibited by educational leaders in the field of environmental education initiatives hold significant significance. The resolute commitment demonstrated by the individuals in question exemplifies visionary leadership, which is consistent with the conclusions drawn by Johnson et al. (2018) and the research conducted by Smith and Brown (2020). These leaders not only place a high importance on the development of academic knowledge, but also acknowledge the significant impact of education in fostering conscientious individuals who demonstrate concern for the environment. By recognizing environmental education as a crucial component

of comprehensive student development and by serving as a role model for the entire school community, educators cultivate an environment in which sustainability and environmental stewardship are deeply embedded. Furthermore, the recognition of the importance of resource allocation and policy support by the individuals aligns with the findings of Smith and Johnson (2020), who underscored the crucial role of funding and supportive policies in the long-term viability and enhancement of environmental education endeavors. In conclusion, educational leaders play a crucial role in fostering the development of individuals who possess a comprehensive set of skills, including critical thinking abilities, attitudes of environmental stewardship, and a sense of civic responsibility. This is in accordance with existing scholarly research conducted by Dillon (2018). By doing so, they assume a pivotal role in influencing the effectiveness and enduring influence of environmental education initiatives within educational establishments.

The dedication and assistance demonstrated by educational leaders in the field of environmental education initiatives are not only representative of forward-thinking leadership, but also have significant ramifications for educational institutions and their communities. Leaders who place environmental education as a top priority serve as catalysts for fostering innovation and facilitating positive transformation within educational institutions. The acknowledgment of the diverse advantages associated with environmental education, such as comprehensive student development and the cultivation of responsible citizenship, highlights its significant impact on students' individual growth and its broader implications for society. Through the establishment of a precedent within the broader school community, leaders cultivate an environment in which sustainability becomes an integral component of the educational framework. This, consequently, corresponds with research that underscores the significance of school culture in influencing students' attitudes and behaviors pertaining to environmental stewardship. Furthermore, the comprehension of leaders regarding the crucial significance of resource allocation and policy support aligns with existing research, emphasizing the essential requirement for financial investment and carefully designed policies to maintain and

enhance the impact of environmental education initiatives. In conclusion, the dedication of educational leaders plays a crucial role, as it not only influences the effectiveness of environmental education initiatives but also fosters the growth of environmentally aware and socially responsible individuals who possess the skills to tackle the urgent global issues of our era.

Curriculum Integration

The effective incorporation of environmental subjects into the educational program, as demonstrated through the examination of documents and interviews with teachers, signifies a hopeful instructional strategy that aligns with the principles of interdisciplinary learning and is substantiated by previous research in the realm of environmental education.

Interdisciplinary education, which involves the integration of knowledge and concepts across multiple subject areas, has long been recognized as a powerful tool for enhancing students' understanding of complex real-world issues (Steiner & Posch, 2006). The integration of environmental principles into fundamental disciplines such as science, social studies, and language arts is consistent with an interdisciplinary methodology, providing students with a comprehensive viewpoint on matters pertaining to the environment. The integration of environmental education not only guarantees that students develop a strong basis of environmental knowledge, but also highlights the interrelated nature of environmental challenges with other societal and academic domains (Rickinson et al., 2017).

The efficacy of this methodology is emphasized by the research conducted by Yang (2012), wherein they posit that the integration of various disciplines in environmental education fosters the development of critical thinking aptitude and facilitates the cultivation of problem-solving capabilities. Through the incorporation of environmental content into the curriculum, students are provided with an opportunity to engage in critical thinking regarding environmental challenges, analyze the potential consequences associated with these challenges, and cultivate innovative approaches to address them. This is consistent with the overarching objectives of education in equipping students with the skills and knowledge necessary to become proactive and involved members of

society who are capable of tackling intricate global challenges.

The deliberate and aligned incorporation of environmental subjects, as evidenced in the examination of the document, demonstrates a dedication to guaranteeing that environmental education is seamlessly integrated into the educational process. This is consistent with the suggestions put forth by Acosta et al. (2020), who underscore the significance of incorporating sustainability and environmental education into the formal curriculum. The incorporation of environmental education not only validates the significance of this field of study, but also offers educators a well-defined framework to adhere to.

The effective incorporation of environmental subjects into the educational curriculum, employing an interdisciplinary methodology, as evidenced by the examination of documents and interviews with educators, signifies a strategy in environmental education that is substantiated by research and aligned with sound pedagogical principles. This educational program not only provides students with fundamental knowledge about the environment, but also cultivates their ability to think critically, solve problems, and develop a comprehensive understanding of the interrelatedness of environmental issues. This approach is in accordance with the overarching objectives of education, which aim to equip individuals with knowledge and skills to become well-informed and empowered members of society. These individuals should possess the capability to effectively tackle the intricate environmental issues that we currently face.

Environmental Education Evaluation Framework

The research findings emphasize the need for a standardized evaluation framework to effectively assess the efficacy of environmental education initiatives. This aligns closely with established best practices and previous research in the field of environmental education. The establishment of a framework is crucial in order to effectively assess, evaluate, and enhance the impact and results of environmental education programs.

The study conducted by Stevenson et al. (2018) highlights the significance of implementing comprehensive assessment mechanisms in the field of environmental education. The authors contend that in the

absence of a thorough evaluation, it becomes difficult to determine the actual efficacy of these initiatives and to make well-informed decisions aimed at improving them. Moreover, the necessity for decision-making based on data, a crucial aspect highlighted in the research findings, is in accordance with the suggestions put forth by Suggate et al. (2019). It is emphasized that educational programs, including environmental education, should place significant emphasis on the utilization of empirical evidence in order to assess their effectiveness and adjust strategies accordingly.

The need for a standardized evaluation framework resonates with wider conversations in the field of education management and policy research. In alignment with the proposition put forth by Smith and Johnson (2020), the incorporation of standardized assessment instruments in educational policy research, the field of environmental education stands to gain considerable advantages from the implementation of a well-defined framework that is specifically designed to address its distinct goals and objectives. This framework has the potential to enhance uniformity in evaluating outcomes of environmental education in various contexts, enabling significant comparisons and the recognition of exemplary approaches.

The research findings are indicative of the wider global initiative for sustainability in education, as advocated by UNESCO (2017). In accordance with the objectives set forth by UNESCO, the implementation of comprehensive assessment frameworks is imperative, serving not only to monitor advancements but also to effectively attain the overarching objective of education for sustainable development. This objective encompasses environmental education as a fundamental element.

The research findings support the implementation of a standardized evaluation framework in environmental education, which is consistent with the existing body of research. This literature highlights the importance of employing robust assessment methods, making decisions based on data, and ensuring uniformity in program evaluation. The proposed framework possesses the capacity to greatly augment the caliber and influence of environmental education endeavors, thereby making a valuable contribution to the overarching global goals of

sustainability and education for sustainable development.

IV. Conclusion

The steadfast dedication and forward-thinking guidance of educational leaders, along with their recognition of the significance of resource distribution and policy endorsement, establish a solid groundwork for these programs. The effective incorporation of environmental subjects into the educational curriculum, employing an interdisciplinary methodology, highlights the efficacy of a comprehensive and interconnected approach to learning. The strong demand for a standardized evaluation framework underscores the critical necessity to comprehensively measure, evaluate, and enhance the impact of environmental education. Collectively, these discoveries offer valuable perspectives on the fundamental factors that contribute to the triumph and durability of environmental education endeavors, establishing them as indispensable constituents of a comprehensive and progressive educational framework.

Acknowledgement

The publication of this review is funded by the Pusat Layanan Pembiayaan Pendidikan (PUSLAPDIK), Lembaga Pengelola Dana Pendidikan (LPDP) and Beasiswa Pendidikan Indonesia (BPI) for doctoral students with scholarship programs.

References

- [1] Abbas, M. Y., & Singh, R. (2014). A survey of environmental awareness, attitude, and participation amongst university students: A case study. *International Journal of Science and Research*, 3(5), 1755-1760.
- [2] Acosta Castellanos, P. M., Queiruga-Dios, A., Hernández Encinas, A., & Acosta, L. C. (2020). Environmental education in environmental engineering: Analysis of the situation in Colombia and Latin America. *Sustainability*, 12(18), 7239.
- [3] Bellei, C., & Morawietz, L. (2016). Strong content, weak tools. Twenty-first-century competencies in the Chilean Educational Reform. *FM Reimers y C. Chung, Teaching and Learning for the Twenty-First-Century: Educational Goals, Policies, and Curricula from Six Nations*, 93-126.
- [4] Delia, J., & Krasny, M. E. (2018). Cultivating positive youth development, critical consciousness, and authentic care in urban environmental education. *Frontiers in psychology*, 8, 2340.
- [5] Dillon, J. (2018). On the convergence between science and environmental education. *Science Education Research and Practice in Asia-Pacific and Beyond*, 87-94.
- [6] Inkelas, K. K., & Weisman, J. L. (2003). Different by design: An examination of student outcomes among participants in three types of living-learning programs. *Journal of College Student Development*, 44(3), 335-368.
- [7] Johnson, D. C., Stephens, C., Nelson, J. J., & Johnson, E. J. (2018). Violating Lau: Sheltered English Instruction programs and equal educational opportunity. *Journal of Education Policy*, 33(4), 488-509.
- [8] Kurland, H., Peretz, H., & Hertz-Lazarowitz, R. (2010). Leadership style and organizational learning: The mediate effect of school vision. *Journal of Educational administration*, 48(1), 7-30.
- [9] Mahardhani, A. J. (2023). The Role of Public Policy in Fostering Technological Innovation and Sustainability. *Journal of Contemporary Administration and Management (ADMAN)*, 1(2), 47-53.
- [10] Rickinson, M., De Bruin, K., Walsh, L., & Hall, M. (2017). What can evidence-use in practice learn from evidence-use in policy?. *Educational Research*, 59(2), 173-189.
- [11] Smith, D. D., & Tyler, N. C. (2011). Effective inclusive education: Equipping education professionals with necessary skills and knowledge. *Prospects*, 41(3), 323-339.
- [12] Smith, R. A., & Brown, M. G. (2020). Far beyond postsecondary: longitudinal analyses of topical and citation networks in the field of higher education studies. *The Review of Higher Education*, 44(2), 237-264.

- [13] Steiner, G., & Posch, A. (2006). Higher education for sustainability by means of transdisciplinary case studies: an innovative approach for solving complex, real-world problems. *Journal of Cleaner production*, 14(9-11), 877-890.
- [14] Stevenson, M. (2018). Assessing risk assessment in action. *Minn. L. Rev.*, 103, 303.
- [15] Stevenson, R. B. (2007). Schooling and environmental education: Contradictions in purpose and practice. *Environmental education research*, 13(2), 139-153.
- [16] Suggate, S., Pufke, E., & Stoeger, H. (2019). Children's fine motor skills in kindergarten predict reading in grade 1. *Early childhood research quarterly*, 47, 248-258.
- [17] Yang, Y. T. C. (2012). Cultivating critical thinkers: Exploring transfer of learning from pre-service teacher training to classroom practice. *Teaching and Teacher Education*, 28(8), 1116-1130.