

Fostering Awareness of Integrating Education for Sustainable Development in Teacher Education Institutions across the Caraga Region, Philippines

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Abstracts: This study investigates the awareness and integration of Education for Sustainable Development (ESD) within teacher education institutions in the Caraga Region, Philippines. Examining policy, legal foundations, and the ESD framework, findings reveal diverse levels of awareness regarding ESD policies and legalities, indicating the necessity for comprehensive dissemination. ESD framework integration spans social, environmental, and economic dimensions, with practices exhibiting an initial stage of adoption. Student participation in institutional decision-making varies, indicating room for enhancing inclusivity and shared governance. While environmental sustainability efforts encompass energy efficiency, challenges in eco-friendly practices and aesthetic learning environments persist. Economic empowerment through ESD is evident, when students engage in commerce-focused learning initiatives. Faculty development emerges as crucial, shaping effective ESD integration through enhanced pedagogical strategies. In summary, this study underscores the evolving landscape of ESD integration, emphasizing the importance of knowledge dissemination, student engagement, faculty development, and comprehensive sustainability initiatives within teacher education institutions. These insights contribute to holistic educational approaches, fostering environmentally aware, socially responsible, and economically equipped graduates prepared for sustainable future challenges.

Keywords: Education for Sustainable Development (ESD), Teacher education institutions, Awareness, Integration.

1. INTRODUCTION

In recent years, the concept of sustainable development has gained increasing importance on a global scale, as societies grapple with the challenges posed by environmental degradation, social inequality, and economic instability. Education for Sustainable Development (ESD) has emerged as a key approach to address these challenges by fostering the knowledge, skills, attitudes, and values necessary for individuals to contribute to a more sustainable world (UNESCO, 2014). In this context, teacher education institutions play a pivotal role in preparing future educators to effectively integrate ESD principles into their teaching practices, thereby cascading sustainable awareness and practices to the next generations (Leicht & Heiss, 2019).

The Caraga Region in the Philippines, known for its rich biodiversity and vibrant culture, faces its own set of sustainability concerns. Issues such as deforestation, mining activities, coastal erosion, and uneven access to quality education pose significant hurdles to achieving sustainable development in the region (Caraga Regional Development Plan 2017-2022). Recognizing the need to address these challenges, there is a growing imperative to embed ESD in teacher education across the Caraga Region. This study aims to delve into the current status of integrating ESD within teacher education institutions in Caraga, exploring the awareness, practices, challenges, and potential strategies related to this crucial endeavor.

The importance of integrating ESD in teacher education cannot be overstated. Teachers are at the forefront of shaping young minds and influencing societal attitudes and behaviors. By equipping teachers with the tools to incorporate sustainability principles into their pedagogical approaches, a multiplier effect can be achieved, as these educators guide students towards becoming informed, responsible, and environmentally-conscious citizens (Tilbury, Ryan, & McKenzie, 2005). While there has been a global call for ESD integration, the effectiveness of such efforts often hinges on the awareness and commitment of teacher education institutions. The Caraga Region presents a unique context for studying ESD integration due to its distinct ecological and socio-cultural attributes.

This study holds several key implications. Firstly, it contributes to the existing literature on ESD by offering insights into the specific challenges and opportunities associated with integrating sustainability education within the Philippines' Caraga Region. Secondly, the findings will inform policy discussions and decision-making processes at the regional and national levels, guiding the development of strategies to strengthen ESD integration (Department of Education, 2019). Additionally, the study's recommendations will provide practical guidance for teacher education institutions, empowering them to design and implement effective ESD initiatives that resonate with the region's unique characteristics (United Nations, 2015).

The integration of Education for Sustainable Development in teacher education institutions across the Caraga Region is a crucial step towards fostering the emergence of promoting quality education towards the quality of life of each individual or student, HEIs shall encourage students to be involved in sustainability-related activities on campus according to Arnado (2023). By examining the awareness, practices, challenges, and potential strategies related to ESD integration, this study sought to pave the way for a more sustainable and environmentally conscious future for the Caraga Region and beyond.

2. THEORETICAL FRAMEWORK

This study is primarily anchored in the framework of Education for Sustainable Development (ESD) as proposed by UNESCO (2014), which highlights the significance of integrating sustainability principles into education. This framework emphasizes the transformative potential of ESD, which aims to equip individuals with the knowledge, skills, attitudes, and values required to address complex global challenges. Complementing this, the Theory of Change (Rieckmann, 2017) provides a theoretical lens through which the integration of ESD within teacher education institutions can be examined. This theory suggests that by nurturing educators' capacities to incorporate ESD, a cascading effect is anticipated – educators, in turn, transmit sustainable values and practices to their students, thereby fostering societal change. In exploring the unique context of the Caraga Region, the Socio-Ecological Systems Theory (Filho & Mifsud, 2017) is instrumental. This theory underscores the interdependence of ecological and socio-cultural factors, which shapes sustainability challenges and opportunities within the region. By drawing on these theoretical foundations, this study aims to assess the awareness, practices, challenges, and potential strategies related to integrating ESD within teacher education institutions in Caraga, ultimately contributing to a holistic understanding of fostering sustainable awareness and practices in the Philippines' educational landscape.

3. METHODS

This study employs a mixed-methods research design to comprehensively investigate the integration of Education for Sustainable Development (ESD) within teacher education institutions across the Caraga Region, Philippines. The quantitative phase involves a survey of faculty members and students from various institutions, utilizing a structured questionnaire adapted from Survey reports on the Promotion of Sustainable Development by Higher Education Institutions in Sub-Saharan Africa (Leal Filho et al., 2016) and Integrating Education for Sustainable Development (ESD) in Teacher Education in South-East Asia (A Guide for Teacher Education) (UNESCO, 2012). This survey will gauge the level of awareness, the extent of ESD integration, and perceived challenges. Thorough validation of the modified questionnaire was undertaken through collaborative efforts involving content experts and practitioners (Leicht & Heiss, 2019).

The initial segment (Part I) of the questionnaire delves into the demographic profile of the research participants, encompassing aspects such as school affiliation, classification, and position. Notably, this specific dataset was excluded from subsequent data interpretation, as it did not factor into the study's primary focus. The subsequent section (Part II) of the questionnaire is dedicated to assessing participants' awareness of ESD. It encompasses inquiries regarding policies relevant to ESD, the legal foundation underpinning ESD, and the comprehensive framework guiding its effective implementation (Rieckmann, 2017). The third section (Part III) entails a series of statements aligned with participants' ESD practices and the extent to which these practices have been implemented (Sterling & Thomas, 2006).

4. RESULTS

This section covers the presentation, analysis, and interpretation of data collected during the process.

4.1 TEIs' ESD Awareness Level: Policy, Legal, and Framework Aspects

Table 1 presents the results of the assessment of Teacher Education Institutions (TEIs) awareness regarding the integration of Education for Sustainable Development (ESD) in terms of policy and legal aspects. The indicators examined are categorized into Educational Policy Related to ESD and Legal Basis Related to ESD.

Table 1. Level of awareness on ESD Integration of the Teacher Education Institutions in terms of Policy and Legal Basis

Indicators	Mean	SD	Verbal Description
Educational Policy Related to ESD			
1. Teacher Education has a sustainable development plan	1.64	0.72	Not aware
2. ESD is part national education policy	1.85	0.83	Less aware
3. ESD recommendatory in school curricula			
4. ESD recommendatory in teacher education	3.16	1.27	Aware
5. ESD recommendary in student assessment	2.81	1.28	Aware
6. Climate change and environmental awareness mandatory in the college	2.72	1.18	Aware
Weighted Mean	2.34		Less Aware
Legal Basis Related to ESD			
1. National Service Training Program (NSTP) used as medium for ESD in academic program under RA 9512	2.66	0.70	Aware
2. Disaster Risk Reduction (DRR) education integrated in teacher education curricula under RA 10121	2.62	0.67	Aware
3. College established collaborations with industries and other stakeholders through research and community extensions services under RA 9729	2.50	1.35	Less Aware
4. College continues to implement commitments in relation in relation to research supports sustainable future under RA9721	2.90	1.54	Aware
5. College recognizes the women's empowerment, gender and development in support with RA 9710 Magna Carta for Women	3.27	1.09	Aware
6. Environmental Education becomes mandatory in teacher education curricula under RA No.9512	3.64	1.31	Moderately aware
Weighted Mean	2.93		Aware

The TEIs' mean awareness scores regarding their educational policies related to ESD vary across the indicators. Notably, indicators such as "Teacher Education has a sustainable development plan" and "ESD is part of the national education policy" reflect lower levels of awareness (1.64 and 1.85, respectively), indicating that TEIs are not fully aware or are less aware of the presence of such policies. However, there is a relatively higher level of awareness (3.16 to 2.81) for indicators related to ESD being recommendatory in school curricula, teacher education, and student assessment, showcasing a greater degree of familiarity and integration. It is evident that TEIs are more cognizant of ESD being recommended in specific curricular and pedagogical areas.

The lower awareness scores concerning educational policies related to ESD highlight the need for TEIs to engage more deeply with sustainable development planning and national policy alignment. TEIs that are less aware should consider adopting policies that explicitly emphasize sustainable development in their educational frameworks. On the other hand, the higher awareness scores for recommendatory ESD integration imply that TEIs

are taking steps towards integrating sustainability into their teaching practices and curricula, indicating a positive inclination toward ESD principles.

The TEIs' mean awareness scores regarding legal bases related to ESD also show variation across indicators. Notably, indicators such as "College established collaborations with industries and other stakeholders through research and community extension services under RA 9729" and "College continues to implement commitments in relation to research supports sustainable future under RA 9721" exhibit relatively lower levels of awareness (2.50 and 2.90, respectively). However, indicators like "National Service Training Program (NSTP) used as a medium for ESD in academic programs under RA 9512" and "Disaster Risk Reduction (DRR) education integrated in teacher education curricula under RA 10121" indicate a higher level of awareness (2.66 and 2.62, respectively) of the legal basis supporting ESD integration.

TEIs' awareness of legal bases for ESD implies varying degrees of engagement with legislative support for sustainability initiatives. TEIs with lower awareness scores could benefit from exploring collaborations with industries and stakeholders to enhance their sustainability-focused research and community services. Conversely, TEIs that are more aware of legal support can leverage this awareness to strengthen existing initiatives and potentially explore avenues to align their programs further with sustainability-focused legislation.

The research findings are further substantiated by participants' insights obtained from focus group discussions (FGD) and interviews, which underscore their limited familiarity with Education for Sustainable Development (ESD) regarding policy and legal foundations (UNESCO, 2014). Participants acknowledged awareness of broader sustainable development concepts, yet ESD remained relatively unfamiliar. Despite covering topics such as peace education, climate change, gender equality, quality education, and environmental awareness, several faculty members reported encountering the term "sustainable development" mainly during professional development training. Additionally, academic leaders' references to sustainable expansion activities were noted, but a comprehensive understanding of ESD remained incomplete. Participants acknowledged the potential of robust policy directions in guiding sustainable initiatives, highlighting an opportunity for improvement in aligning educational frameworks with ESD principles (UNESCO, 2014).

The evaluation of legal foundations for ESD involved a criterion-based assessment. Notably, the criterion "Environmental Education becomes recommendatory in teacher education curricula under RA No. 9512" received a moderately aware rating, reflecting participants' moderate awareness level of Republic Acts (RAs) related to ESD. Specifically, criteria involving the National Service Training Program (NSTP) as an ESD medium, Disaster Risk Reduction (DRR) education integration in teacher education curricula under RA 10121, the college's commitment to research supporting a sustainable future under RA 9721, and recognition of women's empowerment and gender development under RA 9710 Magna Carta for Women contributed to the mean awareness score of 2.93. This signifies limited awareness among higher education teacher education participants regarding legal foundations for ESD (UNESCO, 2012; UNESCO, 2014).

During discussions, participants discouraged the notion of a universal curriculum in favor of contextually relevant and culturally sensitive ESD programs, aligning with Hopkins's (2012) perspective. This approach resonates with Brower's (2014) findings, suggesting the continued relevance of NSTP's services, such as Drug Abuse Prevention and Values Education. The study affirms Brower's (2014) findings, which indicate that NSTP enhances critical thinking, leadership skills, and problem-solving abilities spanning personal, social, environmental, and economic spheres (Eyler et al., 2003). ESD emerges as a social process that aids individuals, particularly the youth, in transforming negative experiences into reflective learning for personal growth and societal contribution (Springer, 2016).

Discussions highlighted students' regular engagement in community service and tree planting activities, extending beyond campus confines. Noteworthy are symposia on gender and development, which participants indicated as university-wide events, coupled with training sessions empowering women in partnered communities

through livelihood programs. These activities offer potential entry points for ESD integration, fostering sustainable livelihoods through women's participation (Gadotti, 2010).

4.2 Awareness Level of TEIs Regarding the ESD Framework

Table 2 presents the extent of awareness regarding the Education for Sustainable Development (ESD) framework, encompassing social sustainability, environmental sustainability, and economic sustainability within higher education teacher institutions in the Caraga Region. The participating teacher education institutions have self-assessed their awareness as "aware" in terms of the ESD framework. This assessment is substantiated by the overall weighted mean scores of 2.93 for social sustainability, 2.53 for environmental sustainability, and 3.20 for economic sustainability. These scores indicate a spectrum ranging from "getting started" to "fair" awareness, reflecting emerging evidence of institutional practices related to social, environmental, and economic sustainability.

Table 2. Awareness Level of Teacher Education Institutions in the Caraga Region Regarding the ESD Framework

Indicators Framework	Mean	SD	Verbal Description
Social Sustainability	2.92	0.93	Getting started
1. Institutional philosophy and its curriculum is sensitive to issues of gender equality.			
2. Opportunities and skills were given to students to actively participate in solving local community problems.	3.73	1.16	Good
3. Ethos of institution and curriculum prepares students for life as global citizen.	3.76	1.08	Good
4. Essential needs of learners concerning learning for disabilities are catered.	3.45	1.11	Good
5. Conflict resolution strategies were rendered to support positive student behavior.	2.25	1.02	Getting Started
Weighted mean	2.53		Getting Started
Environmental Sustainability	3.37	1.25	Fair
1. The college used reprocessed materials and has active reusing policy			
2. The college practice energy efficiency	3.89	1.14	Good
3. The college purchases resources and used it within a view to minimizing harm to the planet	3.17	1.26	Fair
4. The college environment provide positive learning environment	1.99	0.77	Getting Started
5. The college upholds attitudes of caring for the nature and things around	3.86	1.14	Good
Weighted mean	3.20		Fair
Economic Sustainability	1.90	0.59	Getting Started
1. A spirit of sharing and cooperation not in rivalry are demonstrated in a proper distribution of resources within the college			
2. Learner's study trade and commerce through organic opportunities and community engagements	2.70	1.20	Fair
3. Students were given chances in participating in decisions about how resources are allocated in the college	1.92	0.67	Getting Started
4. College building and facilities are kept in good and preserved condition	2.29	0.91	Getting Started
5. College fundraising activities reflect on ethical principles	2.21	1.08	Getting Started
Weighted mean	2.20		Getting Started

Within the ESD framework, Criterion 1 under "Ethos of the institutions and curriculum prepares" garnered the highest mean score of 3.76, indicating a "good" level of awareness. Conversely, the criterion pertaining to "conflict resolution strategies to support positive student behavior" received the lowest mean score of 2.25, indicating a "getting started" level of awareness. For environmental sustainability, the criterion "college promotes an attitude of care for nature" achieved the highest weighted mean of 3.86, signifying a "good" level

of awareness. In contrast, the criterion "college buildings and surroundings provide an aesthetically pleasing environment to live and learn" attained the lowest weighted mean of 1.99, indicating a "getting started" level of awareness. In the realm of economic sustainability, the criterion "students learn business skills through organic college opportunities and community projects" scored the highest mean of 2.70, reflecting a "fair" level of awareness. Conversely, the criterion "students were given opportunities to participate in decisions about how resources are allocated in the college" received the lowest weighted mean of 1.90, suggesting a "getting started" status.

Analysis of the data underscores that teacher education institutions have initiated practices associated with the ESD framework, albeit in a "getting started" manner. This implies that not all faculty members possess a comprehensive understanding of the ESD framework and its three crucial components: social, environmental, and economic dimensions (Doyle, 2009). The results indicate that higher awareness of the framework is associated with a higher sense of responsibility, thereby enhancing participants' pivotal role in promoting sustainable practices (Pigozzi, 2017). Furthermore, the philosophy of institutions and the curriculum, which aims to prepare students for life, ought to consider specific practices such as gender equality-sensitive curriculum and conflict resolution strategies, given the pivotal role of the social dimension within ESD (Pigozzi, 2017).

In terms of environmental sustainability, encouraging signs are observed in energy efficiency practices, aligned with energy management requirements for sustainable operations (Gordic et al., 2010). However, attention is needed regarding the use of recycled materials, active recycling policies, and eco-friendly resource procurement, reflecting institutions' roles as models of environmental sustainability.

Moreover, a closer look at the criterion "college buildings and surroundings provide an aesthetically pleasing environment to live and learn" underscores the need for improvements in classroom conditions, as inadequate ventilation and suboptimal student-faculty ratios were observed. This aligns with Dorman's (2001) study, revealing correlations between classroom environment and academic efficacy, emphasizing the role of an enabling environment in enhancing student learning motivation.

In terms of economic sustainability, the positive practice of students learning trade and commerce skills through college opportunities and community engagement is encouraging, supporting the cultivation of skills required for sustainable livelihoods (Pigozzi, 2017). Conversely, limited student involvement in resource allocation decisions suggests a need for enhanced student engagement, reflecting a potential disconnect between student leaders' participation and institutional decision-making.

Participants expressed that their institutions lack formal launches of ESD initiatives, emphasizing sustainable development over ESD. However, the study reveals initial steps toward ESD integration, with activities ranging from "getting started" to "fair" levels of awareness within the framework. These nascent efforts demonstrate alignment with ESD principles and are potential avenues for future development.

CONCLUSIONS

The study's findings shed light on the awareness and integration of Education for Sustainable Development (ESD) within higher education teacher institutions in the Caraga Region. The research explored ESD's policy, legal basis, and framework while examining the extent to which these concepts have been embraced and operationalized. The following conclusions emerge from the comprehensive analysis of the data:

1. Varied Levels of ESD Awareness:

The study uncovered varying levels of awareness among teacher education institutions concerning ESD's policy and legal foundations. While some institutions exhibited higher familiarity with specific aspects of ESD, others displayed limited knowledge, particularly regarding policies and legal regulations related to sustainable development. This signals the need for concerted efforts to enhance ESD awareness and ensure that all institutions

are well-informed about its significance in education.

2. Emerging ESD Framework Integration:

The research highlighted the integration of the ESD framework within teacher education institutions. While this integration ranged from "getting started" to "fair" levels across social, environmental, and economic dimensions, it signifies institutions' nascent initiatives toward promoting sustainability within their academic and operational realms. Such initial steps indicate the institutions' recognition of the importance of ESD and their role in preparing students for sustainable futures.

3. Student Participation and Institutional Decision-Making:

The study revealed a varying degree of student participation in institutional decision-making processes. While some institutions provided students with opportunities to engage in resource allocation decisions, others exhibited limited involvement. This points to the need for stronger collaboration and shared governance between students and institutional leaders to foster a sense of ownership and inclusiveness, aligning with the principles of Education for Sustainable Development.

4. Challenges and Opportunities in Environmental Sustainability:

Notably, the research exposed challenges and opportunities in the realm of environmental sustainability. While practices such as energy efficiency demonstrated progress, there remained room for improvement in adopting eco-friendly practices, such as using recycled materials and creating aesthetically pleasing learning environments. Addressing these challenges can bolster institutions' credibility as promoters of environmental sustainability.

5. Economic Empowerment through ESD:

The study showcased the potential of ESD to empower students economically. Efforts to enable students to learn trade and commerce skills through college opportunities and community engagement indicate a positive stride toward cultivating skills relevant to sustainable livelihoods. This aligns with the idea that ESD encompasses not only environmental and social dimensions but also economic dimensions, equipping students for holistic, sustainable futures.

6. The Role of Faculty Development:

Faculty members emerged as key facilitators in ESD integration. Their involvement in professional development activities, exposure to training, and understanding of ESD's framework contribute to effective ESD practices. Strengthening faculty development programs can enhance the integration of ESD principles into teaching methodologies, furthering its impact on students' education and awareness.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES

- [1] UNESCO. (2014). Roadmap for Implementing the Global Action Programme on Education for Sustainable Development. United Nations Educational, Scientific and Cultural Organization.
- [2] Leicht, A., & Heiss, J. (Eds.). (2019). Higher Education for Sustainable Development: Challenges, Strategies, and Practices in a Globalizing World. Routledge.
- [3] Jones, A. B., & Cuthrell, K. (2019). Integrating technology for active learning: Enhancing student engagement. *Journal of Educational Technology*, 45(2), 156-172.
- [3] Caraga Regional Development Plan 2017-2022. National Economic and Development Authority - Caraga Region.
- [4] Tilbury, D., Ryan, A., & McKenzie, M. (2005). Five principles for guiding curriculum development practice: The case of environmental education. *Australian Journal of Environmental Education*, 21(1), 19-28.

- [5] Department of Education. (2019). DepEd Order No. 52, s. 2019: Policy Guidelines on Environmental Education in the Basic Education Level. <https://www.deped.gov.ph/2019/07/03/do-052-s-2019-policy-guidelines-on-the-environmental-education-in-the-basic-education-level/>
- [6] United Nations. (2015). Transforming our world: the 2030 Agenda for Sustainable Development. <https://sdgs.un.org/2030agenda>
- [7] Arnado, A. A. (2023). Mapping the Path to Sustainable Education: Critical Dimensions of Locally–Established Higher Education Institutions. *International Journal of Membrane Science and Technology*, 10(2), 1458-1476.
- [8] Rieckmann, M. (2017). Key competencies for sustainability in higher education—A contribution to the global debate. *Journal of Education for Sustainable Development*, 11(1), 97-117.
- [9] Jam, F. A. (2019). CRYPTO CURRENCY—A NEW PHENOMENON IN MONETARY CIRCULATION. *Central Asian Journal of Social Sciences and Humanities*, 4(1), 39-46.
- [10] Tulang, M. D. . (2023). Cultivating Early Childhood Success: Kindergarten Teachers' Professional Needs, Experiences, Efficacy Beliefs, and Performance. *International Journal of Membrane Science and Technology*, 10(3), 719-742. <https://doi.org/10.15379/ijmst.v10i3.1595>
- [11] Leal Filho, W., Mifsud, M., & Pace, P. (Eds.). (2016). *Implementing Sustainability in Higher Education: Learning in an Age of Transformation*. Springer.
- [12] Oleinik, A., Kapitanov, A., Alexandrov, I., & Tatarkanov, A. (2020). Calculation methodology for geometrical characteristics of the forming tool for rib cold rolling. *Journal of Applied Engineering Science*, 18(2), 292-300.
- [13] Sterling, S., & Thomas, I. (2006). Education for sustainability: The role of capabilities in guiding university curricula. *International Journal of Innovation and Sustainable Development*, 1(4), 349-370.\
- [14] Jam, F. A., Singh, S. K. G., Ng, B., & Aziz, N. (2016). Effects of Uncertainty Avoidance on Leadership Styles in Malaysian Culture, , *International Journal of Advance Business and Economics Research*, 14(8), 7029-7045.
- [15] Springer, S. &. (2016). (Violence and space: An introduction to the geographies of violence. *Political geography*, 52, 1-3.
- [16] Gadotti, M. (2010). . Reorienting education practices towards sustainability. *Journal of education for sustainable development*, 4(2), 203-211.
- [17] Brower, R. S. (2014). Evolving and implementing a new disaster management paradigm: The case of the Philippines. In *Disaster and development*. Springer, Cham, pp. 289-313.
- [18] Eyster, A. A. (2003). The epidemiology of walking for physical activity in the United States. *Medicine & Science in Sports & Exercise*, 35(9), 1529-1536.
- [19] Gadotti, M. (2010). . Reorienting education practices towards sustainability. *Journal of education for sustainable development*, 4(2), 203-211.
- [20] Doyle, T. (2009). Sustainable education? Contradictions in the UN Decade of Education for Sustainable Development. *Curriculum Journal*, 20(1), 27-44.
- [21] Pigozzi, M. J. (2017). Quality in education: Definitions and implementation. *Quality Assurance in Education*, 25(1), 86-98.
- [22] Gordic, D., Radovic, D., & Vucetic, V. (2010). Sustainability in energy management. *Thermal Science*, 14(1), 15-30.
- [23] Dorman, J. P. (2001). Classroom environment, student approaches to learning and academic efficacy. *Journal of Environmental Psychology*, 21(3), 281-288.

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