

RESTORATION-BASED EDUCATION OR PRACTICAL TRAINING IN ECOLOGICAL RESTORATION?: APPROACH FROM AN EXPERIENCE IN A DESERTIFIED SOUTH AMERICAN REGION

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Abstract: From educative contents and activities implemented during the formation of cooperatives of native plant production for desertified arid land restoration, underlying educational concepts such as an open curriculum, practice communities, socio-constructivism, and others are discussed. Contents related to historical environmental problems, and marked differences in priority approaches along time in four groups of residents were outstanding features of the educational process. Restoration-Based Education (RBE) is presented as a theoretical framework and base to remark differences with practical training in ecological restoration. The approach of RBE in this study shows the integration of components of currents of environmental education previously cited in the literature.

Keywords: Environmental education currents, ecocentrism, practice communities, restoration training.

BASEADA NA RESTAURAÇÃO OU TREINAMENTO PRÁTICO EM RESTAURAÇÃO ECOLÓGICA?: ABORDAGEM A PARTIR DE UMA EXPERIÊNCIA EM UMA REGIÃO DESERTIFICADA DA AMÉRICA DO SUL

Resumo: A partir de conteúdos e atividades educacionais implementadas durante a formação de cooperativas de produção de plantas nativas para restauração de terras áridas desertificadas, são discutidos conceitos educacionais subjacentes, como currículo aberto, comunidades de prática, sócio-constructivismo, entre outros. Os conteúdos relacionados aos problemas ambientais históricos e as diferenças nas abordagens prioritárias ao longo do tempo em quatro grupos de residentes foram características marcantes do processo educacional. A Educação Baseada em Restauração (EBR) é apresentada como referencial teórico e diferença entre treinamento prático e formação ambiental das pessoas. A abordagem da RBE neste estudo mostra a integração de componentes de correntes de educação ambiental já citadas na literatura.

Palavras-chave: Correntes de educação ambiental, econcentrismo, comunidades de prática, treinamento em restauração.

INTRODUCTION

The United Nations Decade on Ecosystem Restoration (2021-2030) proposes integrating ecological restoration into school and university curricula, as well as into extracurricular activities (UN, 2021). The proposal is a challenge because ecological restoration can be conceived from very different paradigms, and the same occurs with environmental education.

From land ethics and eco-cultural points

of view, ecological restoration could constitute a privileged way to reconnect people with the biological communities (to which they belong by definition) (Jordan III, 2003; 2011; Kimmerer, 2011; Leopold, 1949; Leopold, 2004). On the other hand, from a more economic perspective anchored in the current economic model prevailing worldwide, can be considered a business solution to the environmental crisis (Cross et al., 2019; Pérez et al., 2021).

Both goals of restoration (humanistic and economic) are frequently integrated from the vision of sustainable development promoted by the well-known "Brundland Report" promoted by international organizations in the 1980 decade (UN, 1987). However, many authors point out the failure of this attempt to put a limit on developmental models and the need for an environmental education that generates new forms of relationship between society and nature (Leff, 2010; Kimmerer, 2011).

For articulate environmental education with ecological restoration, it must be considered that at least 15 currents have been cited. They differ in conceptions and methodologies, depending on whether they focus on natural, social, political, religious, cultural, or psychological aspects, among others (Sauvé, 2005; Pérez & Freire, 2023). Also, in certain regions of the world, there are historical and specific contexts to interpret the environmental crisis and consequently environmental education (see Environmental Rationality, Dialogue of Knowledge and Environmental Knowledge in Latin America; Leff, 2012).

It is important to note that there is a profound difference between restoration-based education (RBE), and practical training to restore. In relation to RBE, following McCann (2011), Marques de Abreu (2022) and Pérez & Freire (2023) between others, ecological restoration at any scale, has the potential to restore not only the earth but ourselves, as individuals and human communities.

Regarding scholarly knowledge, RBE includes recognition of students' learning styles, real participation, and evaluation to improve the quality of teaching and achieve the goal of generating a sense of place. Other authors propose to consider as components of RBE design (1) environmental philosophy and political ecology; (2) environmental history, and ancestral uses of the territory, (3) didactics of the social and natural sciences, (4) ecocultural perspectives of ecological restoration, and (5) affective and aesthetic experiences (Garzón et al. 2020; Pérez et al., 2019). As another environmental education (see Sauvé, 2004), RBE is a nodal component of education, which involves nothing less than the reconstruction of the system of relationships between people, society, and the environment (Pérez & Freire, 2023).

The word training is frequently used in ecological restoration (Meli et al. 2019). Although it is suggested that it should be "multidimensional", the focus of training on political, historical, and sociocultural conflicts (e.g. related to actual economic model), is unusual in its approach (Nelson et al., 2008; Meli et al., 2019).

The education for native plant producers from desertified arid zones in northern Patago-

nia, Argentina

Almost one-third of the surface of the province of Neuquén in Argentine Patagonia (32%) have moderate to severe desertification (3,062,799 ha). In the same province, even higher levels of degradation classified as severe and very severe reach 30.5% (2,917,200 ha) and 6.6% (635,800 ha) respectively (Mazzonia & Vazquez, 2010).

The origin of this environmental problem dates from the "desert campaign" (1881-1883), an attempt by the national government of Argentina to exterminate the indigenous peoples of Patagonia (Navarro Floria, 2002). Livestock production began a few years after the military campaign. The number of sheep in Patagonia went from zero in times of indigenous settlements to more than 25,000,000 after 1950 (Mazzonia & Vazquez, 2010).

The expansion of livestock (sheep, cows, goats, horses) to arid and semi-arid areas of Patagonia, such as the Province of Neuquén, was carried out without knowledge of the limitations of productivity and ecological succession in these ecosystems (PRODOC, 2005). Thus, overgrazing caused the permanent degradation of large areas. The reduction in productivity made colonizers more vulnerable to market fluctuations and climatic variations, which led to the exodus of producers, social deterioration, and poverty, particularly of small rural producers (Andrade, 2012). On the other hand, from the 1960s onwards, hydrocarbon deposits began to be exploited in Neuquén, which brought new and severe synergistic disturbances with those of overgrazing (Mazzonia & Vazquez, 2010).

Among alternatives to face the social problems linked to desertification, an emphasis on education for the rural population was proposed (Pérez & Farinaccio, 2013). An example of this approach was the creation of cooperatives for native plant production, through an educational program for residents of unemployed areas (Pérez et al., 2019). In this work, we emphasize analysis and reflections on the educative methodological approach, and educational activities implemented.

MATERIAL AND METHODS

PARTICIPANTS IN THE EDUCATIONAL PROCESS

Between 2010 and 2013, four working groups were formed to develop an educational process for native arid plant production for ecological restoration. Unemployed residents of peripheral areas of four cities of Neuquén were selected.

Each group consisted of five to eight people. The selection of the members in each case was carried out using the "snowball" methodology (Nadefiar et al., 2017), based on an initial

recommendation made by the municipality of each locality. The groups called themselves "Atriplex Lampa"; "Pensamiento Nativo", "Rayén", "Cutral Có". The source of Information is available in <http://rdi.uncoma.edu.ar/handle/uncomaid/15479>. The educative work was coordinated by members of the Laboratory for Rehabilitation and Restoration of Arid and Semi-arid Ecosystems (LARREA) of the National University of Comahue.

Each municipality provides physical space for nursery gardens, completely installed or adapted from pre-existing buildings by each group. The percentage of permanence in the educational process was 40-60%. All participants were provided with a support scholarship during the implementation of the project, which was carried out for a year and a half or two ye-

ars depending on each group.

METHODOLOGY OF IMPLEMENTATION

The educational program required a series of inter-institutional agreements that followed several steps (Table 1.). Two educational research methodologies were integrated. Participatory Action Research involves a process in which researchers become participants at the same time, rather than being mere external observers (Purnomo et al. 2024). "Communities of practice" (Wenger, 1998; 2000) can be understood as the configuration of groups of people who meet to share ideas, find solutions, and innovate, joining their efforts for the continuous development of an area of specialized knowledge (Wenger, 1998).

In the educative implementation stage of

Tab. 1- Steps towards an educational process in native plant production developed in the project, compared with Participatory Action Research (Left column, Le Boterf, 1987), and Practice Communities (Central column, Wenger, 2000).

Model Participatory-Action Research	Model communities of practice	Actual Model
A- Discuss the project with the population and their representatives	A- Starting from strategic initiatives, of common interest to the participants.	A- Discuss the project with the population and their representatives
B- Define the theoretical framework: objectives, concepts, hypotheses, and methods.	B- Definition of critical stakeholders for the achievement of the objectives	B- Achieve institutional awareness
C- Define the area, population, and problem to be studied.	C- Establishing objectives and expected results	C- Disclose information
D- Organize the research process: Select and train researchers and research groups.	D- Promotion of necessary behavior changes in critical actors.	D- Strengthen institutional capacities to create legal frameworks
E- Prepare a schedule of tasks: Prepare and approve the budget and activities.	E- Share and provide knowledge for behavior change.	E- Creation of cooperatives for ecological restoration purposes: define criteria, roles, financing, participants and educators.
	F- Achieve knowledge and management approach.	F- Development of educational contents and activities for native plant production according to the context of several groups

the project, a qualitative analysis of quarterly reports elaborated by LARREA researchers was addressed. Through this analysis, categories that synthesize content and activities were determined (González Gil & Cano Arana, 2010). The categories allowed the data to be condensed into analyzable units and thus, to review and study the data in detail.

The quantitative analysis consisted of determining frequencies of categories of concepts and activities defined in the qualitative process. Then, a principal component analysis was carried out with InfoStat software (Di Rienzo et al., 2011) to discover possible divergences or groupings that explain relationships between educational contents and activities in each group.

RESULTS

As a result of qualitative analysis, six content categories were defined. On the other hand, ten categories summarized the practical tasks (activities) performed (Table 2)

Figure 1 shows the relative frequency of content implemented (eight quarters, in four native plant production cooperatives in Neuquén). The quantitative comparison of activities is shown in Figure 2.

Figure 3 shows that two factors differenti-

ate the four groups in the frequencies of content and activities addressed. Factor 1, which explains 29.09% of the variance, was composed of contents 1, 2, 4, and Activities A2, A4, A5, A6, A9 and A10. According to this factor, the most differentiated groups were PN and CCo-R. Factor 2, which explains 12.09% of the variance, is made up of contents C3 and C5 and Activities A7, and A8, indicating that the two groups with the greatest differences were PN and AI and the two most similar were CCo and R.

DISCUSSION AND CONCLUSIONS

The educational contents and activities allow us to reflect on key aspects of great significance for the next decade for ecosystem restoration, in which an increase in social participation and education is expected (Cecon & Pérez, 2017). For many native species, there are no known protocols for nursery production (Lacoretz & Pérez, 2024). This problem is faced with greater emphasis on species from arid regions that have never been cultivated (Pérez et al., 2019). At the same time, the ideal facilities for nursery production are also unknown.

The challenge posed by the task of producing plants based only on general guidelines generates an open curriculum directed towards

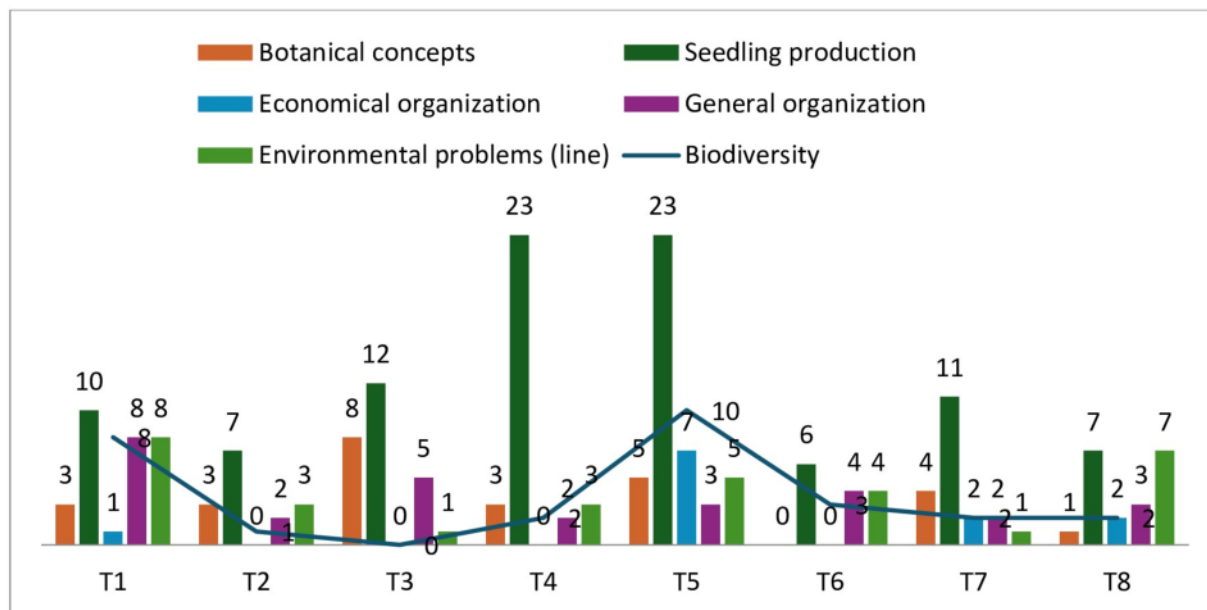


Fig. 1- Graphic representation of educational contents in the educational process of four restoration cooperatives for native plant production in Neuquén (Argentina). The numbers correspond to the frequency of addressing the topic in each of the weekly meetings implemented over two years

Tab. 2- Categories of contents and activities recognized in an educative process dedicated to four groups of native plant producers

Contents	Activities
C1. Environmental problems: Desertification, loss of biodiversity, hydrocarbon impact, Overgrazing, cultural erosion, biodiversity values in arid zones, legal regulations for ecological restoration, and environmental impact.	A1. Organization: construction of infrastructure for physical space, work tables, irrigation system, electrical system, agreements on work schedule adjustments.
C2. Biodiversity: Recognition of families according to floral structure and other morphological features. Keys for species recognition.	A2. Composting: search and transfer of organic matter, animal manure use, irrigation, and substrate management.
C3. Botanical concepts: root, stem, leaves, flowers, fruits. Seed structure. Seed dormancy and pre-germination treatments.	A3. Collection, cleaning, storage, and germination treatment of seeds.
C4. Seedling production: Seed collection and processing, types of containers, irrigation, substrate: texture, salinity, pH, seedling care, electrical and irrigation systems.	A4. Sowing: substrate formula preparation, filling of bags or sowing beds, placement of seeds, and irrigation.
C5. Economical organization: Cost determination. Formalization in the tax system. Management of bank accounts. Expense planning. Investment. Cooperative organization.	A5. Seedling care: pricking out, watering, pruning, weeding, obtaining seedlings from seedling banks, and their propagation.
C6. General organization: Periodical determinations of Facilitators, Obstacles, Threats, and Opportunities. Roles-Functions. Goals. Responsibility. Monitoring of activities. Records. Organization of spaces in the	A6. Recording of task dates, measurements, and preparation of follow-up sheets.
	A7. Economic and accounting: Administrative and banking tasks. Purchase of tools and supplies for the nursery, receipt, and use of funds, billing, and sales.
	A8. Infrastructure: Assembly or conditioning of nursery sectors and construction of workspaces or instruments such as germination beds, etc.
	A9. Communication: Preparation and attention to visits, social media, and participation in social events.
	A10. Homework: reading, video analysis, theoretical assessments, completion of questionnaires, crossword puzzles, attendance at theoretical classes, field trips.

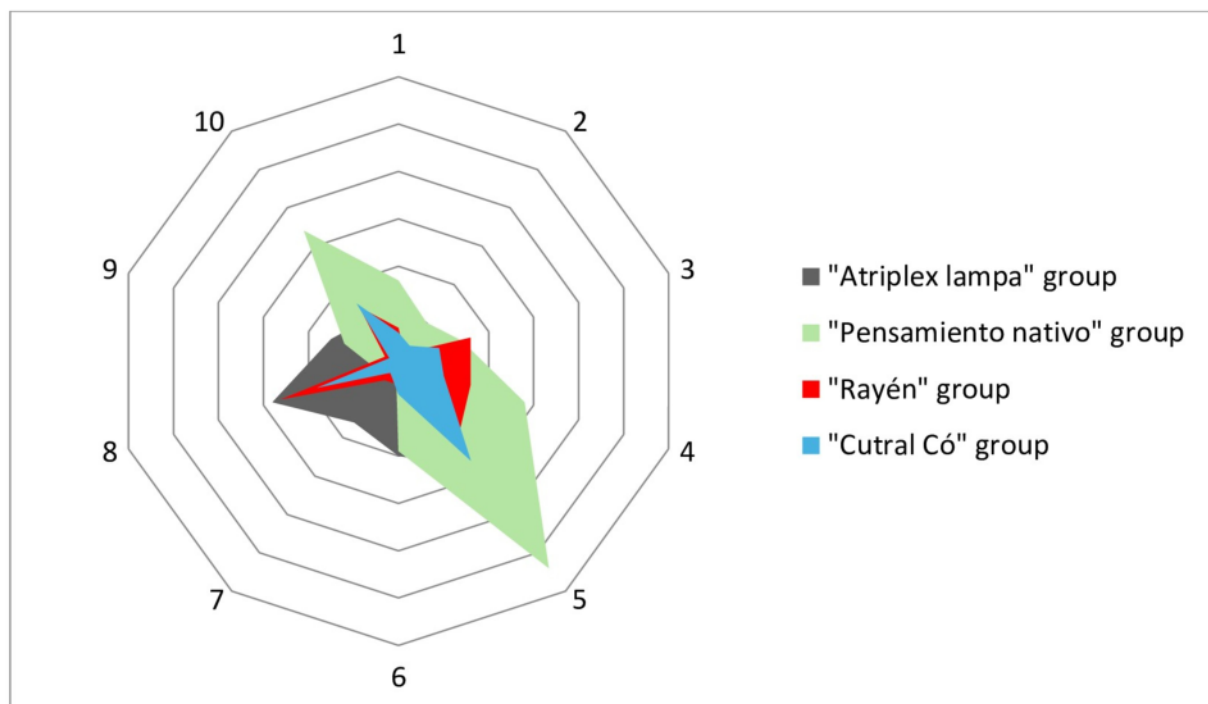


Fig. 2- Comparative activities of four nursery garden in Argentinean Patagonia, after two years. The numbers represents mentioned activity categories 1 to 10.

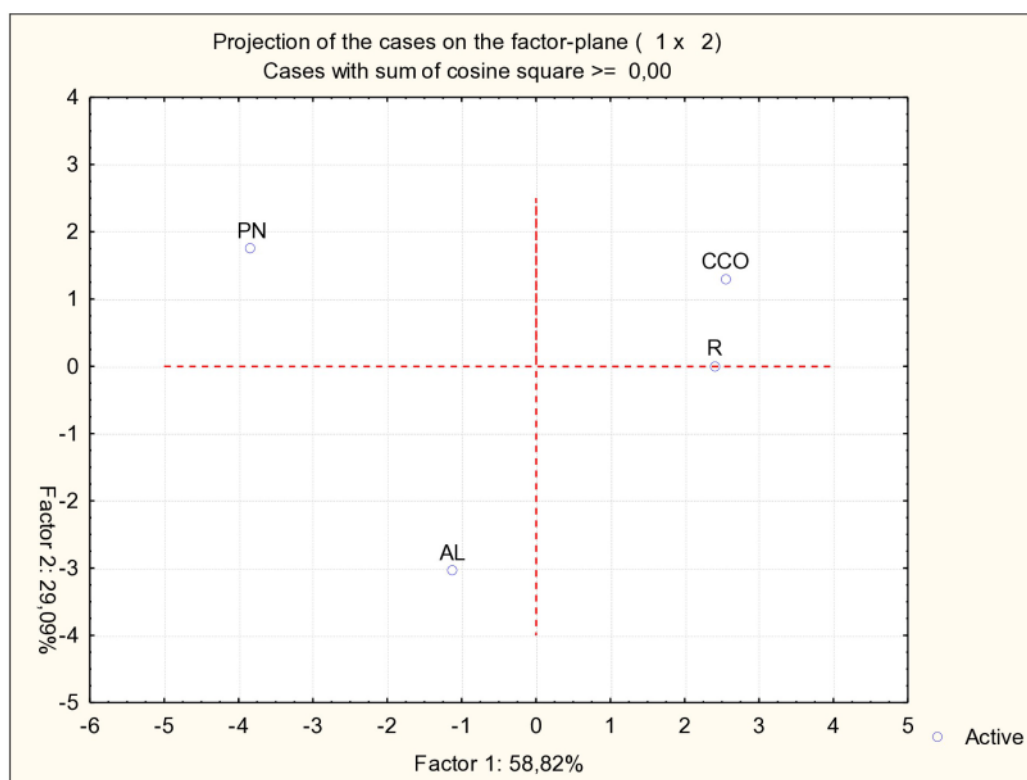


Fig. 3- Principal component analysis for four groups o participants in the educative process: PN: Pensamiento nativo, CCo: Cutral có, R: Rayén, AL: Atriplex lampa.

groups of people whose relationship was nurtured and characterized by constant discussion on mutual interests. We believe that this is the reason why in each nursery we observe a different emphasis on topics and frequency in which the same were addressed. Therefore, praxis about seedling production becomes a process of making sense, a social construction, and a collective understanding of something (Costa, 2007; Grundy, 1987). This collaborative learning is part of a socio-constructivist conception where knowledge is defined as a negotiation or joint construction of meanings (Akpan et al., 2020).

The emphasis on the negotiated curriculum does not imply that there is no underlying structure (Costa, 2007). It was possible to group the contents and activities into common categories. Particularly, the approach to environmental problems (e.g. desertification, loss of biodiversity) was constant throughout the educational process.

A particular reflection corresponds to non-formal Environmental Education and with adults and people in vulnerable situations (people without formal employment in this case). The work for vulnerable groups in the Southern Cone should include not only elements of technical training but also promote the breaking of the stigma of marginalization (Marques de Abreu et al., 2022).

We consider that the generated environmental education proposal integrated some currents of environmental education cited by Sauv   (2004), particularly bioregionalism (Allen, 2011). This current considers the centrality of bioregion characteristics to reverse an ecologically destructive path (in this case, desertification). Based on the production of native plants for restoration, a transition to an alternative society that values arid zones is possible. Also a radical change in perception, ethics, and behavior with arid biodiversity and ecosystems usually degraded by livestock and hydrocarbon activity. In this bioregional context, knowledge of native flora and its cultivation could constitute a path for the re-inhabitation of arid zones (Farinaccio et al., 2021), a concept that is at the core of the bioregional movement.

The emphasis on biology contents can also be seen, which indicates a scientific component (Sauv  , 2005). As could be observed, the work throughout the educational process was placed on the production of seedlings. This could provide opportunities for a practical, non-academic view of plant biology.

The graph of contents related to environmental problems shows continuity in its approach over time (marked as a line over time). It is of fundamental interest to highlight this continuity for the discussion on the Education Based on Education vs. Restoration Training approach raised in the introduction of the article. Educati-

on Based on Ecological Restoration should not only consider the biodiversity of ecosystems, but must also necessarily address the environmental problems of the territories where the teaching-learning processes take place. This implies including in the educational work the historical, social, political and economic dimension of the territory in which one lives. The permanent and high-frequency inclusion of environmental problems allows this experience to be classified as a case of education based on restoration and not technical training.

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REFERENCES

- Allen, B.** 2011. Bioregionalism and global ethics: a transactional approach to achieving ecological sustainability, Social Justice, and Human Well-being. *ISLE Inter. Stud. Lit. Env.* 18(3): 683-685. DOI: <https://doi.org/10.1093/isle/isr057>
- Andrade, L.** 2012. Producci  n y ambiente en la Meseta Central de Santa Cruz, Patagonia austral en Argentina: desencadenantes e impacto de la desertificaci  n. *Amb. Des.* 16(30): 73-92.
- Akpan, V. I., U. A. Igwe, I. C. Mpamah & C. O. Okoro.** 2020. Social constructivism: Implications on teaching and learning. *Brit. J. Educ.* 8: 49-56.
- Costa, C.** 2007. The Curriculum in a community of practice. *S  sifo Educ. Sc. J.* 3: 85-96.
- Ceccon E. & D. R. P  rez.** 2017. Beyond restoration ecology. Social perspectives in Latin America and Caribbean. Buenos Aires, Vazquez Mazzini Editores.
- Cross A. T., P. G. Nevill, K. W. Dixon & J. Aronson.** 2019. Time for a paradigm shift toward a restorative culture. *Rest. Ecol.* 27: 924-928. DOI:<https://doi.org/10.1111/rec.12984>

- Di Rienzo, J. A., F. Casanoves, M. G. Balzarini, L. Tablada & Y. C. Robledo.** 2011. InfoStat versión 2011. Grupo InfoStat, Universidad Nacional de Córdoba, Argentina.
- Farinaccio, F.M., E. Ceccon & D. R. Pérez.** 2021. Starting points for the restoration of desertified drylands: puesteros' cultural values in the use of native flora. *Ecos. Peo.* 17(1): 476-490. DOI: <https://doi.org/10.1080/26395916.2021.1968035>
- Garzón NV, C. H. Rodríguez León, E. Ceccon & D. R. Pérez.** 2020. Ecological restoration-based education in the Colombian Amazon: Toward a new society-nature relationship. *Rest. Ecol.* 28: 153-1060.
- González Gil, T. & A. Cano Arana.** 2010. Introducción al análisis de datos en investigación cualitativa: concepto y características. *Nure Inv.* 44: 1-10.
- Grundy, S.** 1987. Curriculum: product or praxis?. Lewes, Falmer Press.
- Jordan III, W. R.** 2003. The sunflower forest. Berkeley, CA, University of California Press.
- Jordan III WR & G. M. Lubick.** 2011. Making Nature Whole. A History of Ecological Restoration. New York, Island Press
- Kimmerer, R.** 2011. Restoration and reciprocity: the contributions of traditional ecological knowledge. pp. 257-276. In: Egan, D., E. E. Hjerpe & J. Abrams (Eds.). Human dimensions of ecological restoration. Washington DC, Island Press.
- Lacoretz, M. & D. R. Pérez.** 2024. Integrating theory and practice: knowledge exchange and engagement of nursery managers in ecological restoration. *Rest. Ecol.* In evaluation. <https://doi.org/10.1111/rec.14282>
- Le Boterf, G.** 1987. La formation-action en entreprise in *Projet, formation action.* Educ. Perm. 87: 95-107.
- Leff, E.** 2012. Latin american environmental thinking. *Env. Et.* 34: 431-450.
- Leopold, A.** 1949. A Sand County Almanac. New York, Oxford University Press.
- Leopold, A. C.** 2004. Living with the Land Ethic. *Biosc.* 54: 149-154.
- Marques de Abreu, A. H., A. J. Makhoulta, E. L. da Silva Abel, P. Lima Filho, P. H. Pereira Reis & P. S. dos Santos Leles.** 2022. Replanting life: ecological and human restoration. *Rest. Ecol.* 30: e13493. DOI: <https://doi.org/10.1111/rec.13493>
- Mazzonia E & M. Vazquez.** 2010. Desertification in Patagonia. *Develop. Earth Surf. Proc.* 13: 351-377. DOI: [https://doi.org/10.1016/S0928-2025\(08\)10017-7](https://doi.org/10.1016/S0928-2025(08)10017-7)
- McCann, E.** 2011. Restoration based education: teach the children well. Pp 315-335 In: Egan, D., E. E. Hjerpe, J. Abrams (Eds.). Human dimensions of ecological restoration. Washington DC, Island Press.
- Meli, P., D. S. Schweizer, P. H. Brancalion, C. Murcia & M. R. Guariguata.** 2019. Multidimensional training among Latin America's restoration professionals. *Rest. Ecol.* 27(3): 477-484. DOI: <https://doi.org/10.1111/rec.12933>
- Naderifar M, H. Goli & F. Ghaljaie.** 2017. Snowball sampling: a purposeful method of sampling in qualitative research. *Str. Devel. Med. Educ.* 14: 1-3. DOI: <https://doi.org/10.5812/sdme.67670>
- Navarro Floria, P.** 2002. El desierto y la cuestión del territorio en el discurso político argentino sobre la frontera sur (1853-1879). *Rev. Complutense Hist. Am.* 28: 139-168.
- Nelson, C. R., T. Schoennagel & E. R. Gregory.** 2008. Opportunities for academic training in the science and practice of restoration within the United States and Canada. *Rest. Ecol.* 16(2): 225-230.
- Pérez D.R. & F. M. Farinaccio.** 2013. La Unidad Socio Productivo Ambiental: Un modelo posible para la restauración de ecosistemas áridos degradados. pp 423-440 En: Pérez, DR, A. E. Rovere & M. E. Rodríguez Araujo. Restauración ecológica en la diagonal árida de Argentina. Buenos Aires, Vazquez Mazzini Editores.
- Pérez, D. R., F. González, M. E. Rodríguez Araujo, D. E. Paredes & E. Meinardi.** 2019. Restoration of society-nature relationship based on education: a model and progress in Patagonian drylands. *Ecol. Rest.* 37:182-191. DOI: <https://doi.org/10.1016/j.jarindenv.2018.09.001>

- Pérez, D.R., M. J. Rassetto & J. Farina.** 2021. Relationships between ecological restoration and environmental education: a critical view from Enrique Leff's conceptual framework. *Desen. Meio Amb.* 58: 255-264. DOI: <https://doi.org/10.5380/dma.v58i0.76060>
- Pérez, D.R. & L. Freire.** 2023. Restoration-based education: a brief overview of a field under construction. *Rest. Ecol.* DOI: <https://doi.org/10.1111/rec.13983>
- PRODOC.** 2005. Documento del Proyecto Manejo Sustentable de Ecosistemas Áridos y Semiáridos para el Control de la Desertificación en la Patagonia. Versión 3.1. Secretaría de Ambiente y Desarrollo Sustentable. Buenos Aires. Argentina.
- Purnomo, H., D. Puspitaloka, B. Okarda, A. Andrianto, N. Qomar, S. Sutikno, A. Muhammad, I. Basuki, A. Jalil, Yesi, P. Prasetyo, Tarsono, Zulkardi, S. D. Kusumadewi, H. Komarudin, A. Dermawan & M. A. Brady.** 2024. Community-based fire prevention and peatland restoration in Indonesia: A participatory action research approach. *Env. Dev.* 50: 1-14.
- Sauvé, L.** 2004. Currents in environmental education: Mapping a complex and evolving pedagogical field. *Can. J. Env. Educ.* 10: 11-37.
- United Nations** (1987) Report of the world commission on environment and development: our common future. Available in: <http://www.ask-force.org/web/> Accessed on 26 Aug. 2024
- United Nations.** 2021. Strategy of the United Nations Decade on Ecosystem Restoration. Available in: <https://www.decadeonrestoration.org/#:~:text=The%20UN%20Decade%20on%20Ecosystem,if%20everyone%20plays%20a%20part>. Accessed on 23 Aug. 2024
- Wenger, E.** 1998. *Communities of Practice: learning, meaning and identity.* Cambridge University Press
- Wenger, E.** 2000. Communities of practice and social learning systems. *Organization* 7(2): 225-246. DOI: <https://doi.org/10.1177/135050840072002>

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