

# **Reciprocal Token Economy — Living Experience Guides**

*Five Target-Group-Specific Workshop Guides — Appendix B*

---

Michel Garand | February 2026 | Version 1.2 | CC BY-SA 4.0

# Reciprocal Token Economy — Living Experience Guides

---

## Five Target-Group-Specific Workshop Guides Based on Appendix B

---

**Erdpuls Müllrose — Living Laboratory & Makerspace Garden**

**Version:** 1.2

**Date:** February 2026

---

## Changelog

Version	Date	Changes
1.1	February 2026	Institution name updated; license footer added; version updated for OER publication
1.2	February 2026	BNE compliance update: SDG rows, sustainability dimensions, Gestaltungskompetenzen, global-local links, dilemma framing, facilitator qualification, accessibility notes, and Evaluation subsections added to all five guides per <i>BNE-Qualitätskatalog Brandenburg</i> (MLUK, April 2023). BNE Compliance Profile section added.
1.0	October 2025	Initial release

## How to Use These Guides

---

These five guides each adapt the reciprocal token economy framework (Appendix B of the Pattern Discovery Toolkit) into an experiential workshop for a specific target group. Unlike the Questions to the Soil guides — where participants encounter a physical medium — these guides teach an economic philosophy through *doing*: participants practice reciprocal exchange, experience the four token elements, and reflect on how value flows differently in ecosystems, conventional markets, and token economies.

The core pedagogical challenge is this: most people understand economics as extraction and transaction ("I buy, you sell"). The reciprocal token economy operates on a fundamentally different logic — value generated through cooperation, visible through reciprocity, shared through mutualism, and sustained through regeneration. This is not intuitive. It must be *felt*, not merely explained.

Each guide therefore begins with a concrete, tangible experience (a game, an exchange, a collaborative task) before introducing the token framework. The sequence is always: **Do** → **Reflect** → **Name** → **Practice** → **Design**.

**The Proxemic Layer:** Each guide includes proxemic facilitation notes — spatial design guidance drawing on Edward T. Hall's theory of proxemics (*The Hidden Dimension*, 1966). The token economy workshops are fundamentally about *social* proxemic space — how humans relate to each other in economic exchange. Different economic models produce different spatial behaviors: reciprocal exchange is a personal-distance activity (face to face, hand to hand, all sensory channels active), while market transaction is a public-distance or virtual-distance activity (counter, screen, sensory channels closed). The loss when everything becomes a transaction is not merely sentimental — it is a loss of information carried by proximity: information about quality, need, skill, relationship, and context that only flows at personal distance. The proxemic notes help facilitators recognize and design for these spatial dynamics. For the complete proxemic framework, see the *Proxemic Integration* companion document.

**Guide 1:** Children and Youth — "The Garden Economy Game" **Guide 2:** Adults and Families — "Seeing What We Already Exchange" **Guide 3:** Elders and Intergenerational Groups — "The Memory Market" **Guide 4:** Artists and Researchers — "Value Beyond Price" **Guide 5:** Cross-Border Groups — "One Economy, Two Languages"

## BNE Compliance Profile

This collection is designed to comply with the *Qualitätskatalog für außerschulische Anbieterinnen und Anbieter von Bildung für nachhaltige Entwicklung (BNE) im Land Brandenburg* (MLUK Brandenburg, April 2023). The matrix below maps the five guides against the catalog's seven quality areas. Erdpuls overall organizational compliance is documented separately in the *BNE-Qualitätsbewertung & Leitbild* (February 2026).

BNE Criterion	Area	G1 Children	G2 Adults	G3 Elders	G4 Artists	G5 Cross- Border
1.1.1 Life-world relevance	1	✓	✓	✓	✓	✓
1.2.1 Target groups concretely described	1	✓	✓	✓	✓	✓
1.2.3 Concrete, TG-specific goals	1	✓	✓	✓	✓	✓

BNE Criterion	Area	G1 Children	G2 Adults	G3 Elders	G4 Artists	G5 Cross- Border
2.1.1 Multi-dimensional (min. 2 of 4)	2	✓ 4/4	✓ 4/4	✓ 4/4	✓ 4/4	✓ 4/4
2.1.3 Current-relevant — SDG links	2	✓	✓	✓	✓	✓
2.2.1 Controversial — multiple perspectives	2	✓	✓	✓	✓	✓
2.2.2 Global-local connection	2	✓	✓	✓	✓	✓
3.1.1 Experiential	3	✓	✓	✓	✓	✓
3.1.2 Situated	3	✓	✓	✓	✓	✓
3.1.4 Self-directed/participatory	3	✓	✓	✓	✓	✓
3.1.5 Reflective	3	✓	✓	✓	✓	✓
3.1.7 Holistic (Head/Hands/Heart)	3	✓	✓	✓	✓	✓
3.3.1 Preparation materials	3	✓	✓	✓	✓	✓
3.3.3 Follow-up OER materials	3	✓	✓	✓	✓	✓
4 — Gestaltungskompetenz (Transfer 21)	4	✓	✓	✓	✓	✓
5.2.1 Documented reflection/evaluation	5	✓	✓	✓	✓	✓
6.1/6.2 Facilitator qualification stated	6	✓	✓	✓	✓	✓

**Gestaltungskompetenzen coverage across the collection (Transfer 21, all 12 competencies):**

Competency	Primary Guide(s)
4.1.1 Open to the world, new perspectives	G5, G4
4.1.2 Anticipatory / futures thinking	G1, G4
4.1.3 Interdisciplinary action	G2, G4
4.1.4 Recognize risks and uncertainties	G4, G5
4.2.1 Plan and act collectively	G1, G2, G5
4.2.2 Recognize conflicting goals	G2, G4, G5
4.2.3 Participate in decision-making	G2
4.2.4 Motivate self and others	G3, G1
4.3.1 Reflect own values / Leitbilder	G1, G4
4.3.2 Self-directed planning and action	G2, G4
4.3.3 Show empathy	G3, G1
4.3.4 Justice as basis for action	G3, G5

# Guide 1: Das Garten-Wirtschaftsspiel — The Garden Economy Game

## For Children and Youth (Ages 8–18, School Classes)

### Overview

<b>Title</b>	Das Garten-Wirtschaftsspiel / The Garden Economy Game / Gra Ekonomii Ogrodu
<b>Target Group</b>	School classes, youth groups (ages 8–18, with age-differentiated variants)
<b>Group Size</b>	12–30, divided into teams of 4–6
<b>Duration</b>	Half day (3–3.5 hours including breaks)
<b>Location</b>	Zone E (Heritage & Community Hub) for the indoor game phase; Zone B (Garden) for the outdoor practice phase
<b>Season</b>	All seasons; spring and summer allow the garden practice phase to include live planting/harvesting
<b>4A-Pathway Focus</b>	Awareness (noticing how value flows) and Acknowledgment (recognizing one's own contributions as valuable)
<b>Curriculum Links</b>	Sachunterricht/Gesellschaftskunde (economics, society), Mathematics (counting, tracking), Ethics (fairness, sharing), Biology (ecosystem relationships)
<b>Prerequisite</b>	None, but works best after a Questions to the Soil session (Guide 1, Appendix A) — participants who have already observed the garden understand what the token economy values
<b>SDGs Addressed</b>	SDG 4 (Quality Education) · SDG 10 (Reduced Inequalities) · SDG 12 (Responsible Consumption & Production) · SDG 15 (Life on Land)

<b>Sustainability Dimensions</b>	Ecological ✓ (garden activities, natural systems) · Economic ✓ (token economy, value flows) · Social ✓ (cooperation, fairness, equity) · Cultural ✓ (campus heritage, local place)
<b>BNE Gestaltungskompetenzen</b>	4.1.2 Anticipatory thinking · 4.2.1 Collective planning and action · 4.2.2 Recognizing conflicting goals · 4.3.1 Reflecting own values · 4.3.3 Empathy
<b>Dilemma / Controversy</b>	Individual achievement vs. collective benefit · Competition vs. cooperation · Market pricing vs. gift economy · Personal accumulation vs. commons stewardship
<b>Global-Local Connection</b>	Local garden practice ↔ global commons logic · Local token economy ↔ Stellar blockchain (global transparency) · Local Mutualism tokens ↔ global open data principles
<b>Facilitator Qualification</b>	Experience facilitating youth ages 8–18; bilingual DE/EN minimum; basic knowledge of token economy principles; capacity for age-differentiated facilitation
<b>Accessibility</b>	Zone E fully accessible; garden paths adapted for mobility; materials available in large print; tablet-based token card option for writing difficulties
<b>Pre-Workshop Materials</b>	Teacher pre-visit guide at erdpuls.ubec.network; printable token card templates for classroom preview; curriculum integration notes (Sachunterricht, Ethics, Biology)
<b>Evaluation Method</b>	See Evaluation section below

## The Pedagogical Challenge with Young People

Children and teenagers live in a monetary economy they did not design and rarely question. Money = value. More money = more value. Work is done in exchange for money. Things are worth what someone pays for them.

The reciprocal token economy challenges every one of these assumptions. It proposes that cooperation is as valuable as individual achievement, that knowledge shared freely (mutualism) creates more value than knowledge sold, that a grandmother's story about the river is worth as much as a programmer's code, and that the healthiest economy is one where value circulates rather than accumulates.

These ideas cannot be taught through explanation. They must be experienced through a game that makes visible what conventional economics renders invisible.

## Preparation and Materials

**Token Cards** (the central material — prepare in advance): - Four sets of colored cards, each set a different color representing one token element: - **Green:** Cooperation (Kooperation / Współpraca) - **Blue:** Reciprocity (Reziprozität / Wzajemność) - **Orange:** Mutualism (Mutualismus / Mutualizm) - **Gold:** Regeneration (Regeneration / Regeneracja) - Cards are approximately playing-card sized, printed on sturdy card stock - Each card has the element name, a simple icon (a handshake for Cooperation, two arrows for Reciprocity, a network/web for Mutualism, a sprouting seed for Regeneration), and three blank lines for writing what was done - 20–30 cards of each color per workshop

**Additional Materials:** - A "Garden Market" setup: a table with items from the garden or workshop — seeds, dried herbs, small handmade objects, recycled-material items, printed sensor data sheets, hand-drawn pattern cards from previous workshops. These are not for sale — they are for exchange. - A large wall chart: "Value Flow Map" — a poster-sized sheet with four columns (one per element) where completed token cards are pinned - Timer - Facilitator's Guide Sheet (printed, with the game rules and reflection prompts)

## Welcome and Framing (15 minutes)

Gather indoors (Zone E). Begin with a question, not an explanation.

**For ages 8–12:** "I have a question for you. If I give you an apple from the garden, is that worth the same as if I sell you an apple from a shop? What's the difference?"

Let them discuss. The answers will range from "the shop apple costs money" to "the garden apple was grown here." Follow up: "If you help me plant that apple tree, and then three years later we harvest apples together, and you give one to your friend — how many people did that apple help? Is that worth more or less than buying one?"

"Today we're going to play a game about a different kind of economy — one that works more like a garden than like a shop."

**For ages 13–18:** "Here's a thought experiment. You have a piece of knowledge — say, you know how to identify edible plants. In a market economy, you could sell that knowledge: write a book, charge for a course. Now imagine instead you teach three friends, who each teach three friends, who each teach three friends. After three rounds, how many people know? And what did it cost? And who got richer?"

"The conventional answer is: you got poorer, because you gave away what you could have sold. But think about it from the perspective of the whole community. The answer from an ecosystem perspective is different. Today we explore that difference."

## The Experience: Phase 1 — The Garden Economy Game (60 minutes)

### Round 1: The Extractive Economy (15 min)

Each team receives an envelope of "resources" — paper strips representing different capacities: "I can identify plants," "I can build things with my hands," "I know a story about this place," "I can measure soil temperature," "I have time to help," "I can draw well," "I speak two languages."

The facilitator plays "The Market." They stand at the Garden Market table. Teams can approach The Market and trade one resource strip for one item from the table. One resource = one item. When your resources are spent, you stop. No team-to-team trading allowed.

*Proxemic design note:* The spatial arrangement of Round 1 is deliberately sociofugal — it pushes people apart. The Market stands *behind* a table (a barrier). Participants approach one at a time (a queue — linear distance). No team-to-team contact is permitted. This is the proxemic architecture of extraction: the counter, the transaction window, the separation of buyer and seller. The facilitator should set this up precisely — the table barrier, the single approach line, the "no talking to other teams" rule — because the spatial contrast with Round 2 is the workshop's deepest teaching tool.

After 10 minutes, stop. Count what each team got. Some teams will have more than others, depending on their starting resources.

**Debrief Round 1 (5 min):** "How did that feel? Who got the most? Why? Is that fair? What happened to the resources you traded away — where did they go? [Answer: to The Market — one direction, upward.] Did anyone help anyone else? [Answer: no — the rules didn't allow it.] What happens when The Market has all the resources and you have none?"

For older students: "This is roughly how an extractive economy works. Value flows upward. Exchange is transactional. Your resources are used up."

## Round 2: The Reciprocal Economy (30 min)

New rules. The Market is gone. Instead:

*Proxemic design note:* The spatial transformation from Round 1 to Round 2 is the workshop's proxemic core. Remove the table barrier. Remove The Market entirely. The rules now require participants to move freely, approach each other, form spontaneous clusters, work side by side. The arrangement shifts from sociofugal (facing The Market, isolated in queues) to sociopetal (facing each other, gathering around shared tasks). Personal distance decreases as cooperation intensifies. The facilitator should *not* explain this spatial shift in advance — let participants discover it through their bodies. Name it in the debrief: "Look at how you're standing now versus Round 1. In Round 1, you stood in a line facing The Market. Now you're in clusters, facing each other. The economy changed — and so did your bodies."

*To get a Green (Cooperation) card:* Do something together with someone from another team. Build something, solve a puzzle, carry something heavy, organize the materials. Both participants get a card. Write what you did on the card.

---

*To get a Blue (Reciprocity) card:* Teach someone something AND learn something from them. Both must happen. Both participants get a card. Write what you exchanged.

*To get an Orange (Mutualism) card:* Create something that benefits people who aren't in the room — write a pattern card about the garden, draw an observation that will help future visitors, add data to the soil logbook, translate a label into another language. The card records what you contributed to the commons.

*To get a Gold (Regeneration) card:* Do something that makes the campus better than you found it — plant a seed, repair something, water a dry bed, clean up waste, add compost. The card records what you regenerated.

**The Activation Phase (20 min):** Teams disperse across the campus. The garden, the workshop spaces, the heritage buildings — all become sites where token-generating activities are possible. The facilitator circulates and validates token claims (for younger groups) or teams self-validate (for older groups).

**Important rule:** There is no limit to how many tokens anyone can earn. And there is no competition — one team earning more does not reduce what another team can earn. This is the fundamental difference from Round 1, and it takes children time to believe it.

#### **Debrief Round 2 (10 min):**

Gather. Each team pins their earned token cards to the Value Flow Map — Green column, Blue column, Orange column, Gold column. Stand back and look at the result.

"What do you see? Which column has the most cards? Which has the fewest? What does that tell us about what this group values? What was easiest to do? What was hardest?"

Key discussion points by age:

*Ages 8–12:* "In Round 1, when you gave something away, you lost it. In Round 2, when you taught someone something, did you lose it? [No — you still know it.] When you planted a seed, did you lose something? [No — you created something new.] That's the difference between an extractive economy and a regenerative one."

*Ages 13–18:* "In Round 1, the total amount of value was fixed — there was only so much on the Market table. In Round 2, value was *created* by every interaction. Cooperation generates value that didn't exist before. Mutualism multiplies value by sharing it. Regeneration creates value that will exist *after you leave*. This is how ecosystems work — the forest doesn't run out of value because every organism contributes more than it takes."

## The Experience: Phase 2 — Real Practice (45 minutes)

Now that the game has introduced the concepts, participants apply them for real. Each team selects one activity from the Erdpuls program and performs it, consciously tracking which token elements it generates:

### Activity Options:

Activity	Zone	Primary Token Element	Secondary Element
Repair a broken household item (Repair Café format)	A	Cooperation (working together on the repair)	Regeneration (extending an object's life)
Build a simple soil sensor (Arduino)	C	Reciprocity (learning from the facilitator, contributing data)	Mutualism (sensor serves the commons)
Harvest herbs and prepare a garden tea	B	Cooperation (collective harvesting)	Regeneration (harvesting without depleting)
Photograph and label 5 plants for the garden map	B	Mutualism (future visitors benefit)	Cooperation (working in pairs)
Interview a campus volunteer about their work	E	Reciprocity (the interview is an exchange)	Mutualism (the recorded interview serves the archive)
Sort recycled plastic for the Precious Plastic workshop	A	Regeneration (waste becomes material)	Cooperation (sorting is group work)

After the activity, each team reflects: "What token elements did our activity generate? Write the cards. Who benefited beyond our team?"

## Sensor Dialogue and Data Connection (10 minutes)

"The Erdpuls sensor network generates data continuously — soil temperature, humidity, air quality. This data is published openly for anyone to use. That's Mutualism — the sensors share their observations without being asked. When you built a sensor today, or added your plant observations to the garden map, you did the same thing. You became part of the network."

For older students: "The blockchain that records tokens works like the sensor network — it makes value flows transparent and permanent. When you earn a Cooperation token, the record says: 'On this date, these people worked together on this task.' It's a permanent acknowledgment that cooperation happened and mattered."

---

## Closing and Reflection (20 minutes)

Return to Zone E. Circle.

**Ages 8–12:** Each person holds up their favorite token card and says one sentence: "I earned this [color] card because I [what I did]."

**Ages 13–18:** Deeper reflection prompts (choose 2–3): - "What was the hardest token element to earn? Why?" - "In your normal school or family life, which of these four elements is most valued? Which is least visible?" - "If your school ran on this token system instead of grades, what would change?" - "Can you think of something your grandmother or grandfather does that would earn a Regeneration token but that nobody pays for?"

The facilitator closes: "A plant doesn't charge for oxygen. A mycorrhizal network doesn't invoice the trees it feeds. A river doesn't bill the landscape for water. The token economy doesn't try to make nature into a business — it tries to make our economy more like nature. Every time you cooperate, share, contribute to the commons, or leave something better than you found it, you're participating in the oldest economy on earth."

## Follow-Up and Continuation

**In School:** - Design your own token economy for the classroom — what would the four elements reward? - Math exercise: if 20 students each earn 3 Mutualism tokens per week by contributing to a school garden, how many contributions to the commons does the school generate in a year? What is that "worth" in conventional money? Can you even calculate it? - Ethics discussion: "Is it fair to recognize a grandmother's story with the same token as a programmer's code?"

**At Erdpuls:** - Return for any future workshop using the Token Pathway — tokens earned today count toward future participation - Join the Open Makerspace Day as a regular contributor, earning tokens for ongoing engagement

## Token Economy Integration

This guide *is* the token economy integration — participants earn real tokens during the workshop that enter the Erdpuls system. By the end, each participant holds 3–8 token cards that represent genuine contributions to the campus and its commons. These are not play tokens discarded after the game. They are the beginning of the participant's relationship with the Erdpuls economy.

## Facilitator Notes

**The Round 1/Round 2 contrast is essential.** Do not skip Round 1. The felt experience of extraction — the frustration of running out of resources, the unfairness of unequal starting positions, the one-way flow — is what makes Round 2's reciprocal logic emotionally legible. Without the contrast, the four elements are just nice ideas. With the contrast, they are felt alternatives.

**Avoid moralizing.** The game is not "capitalism bad, token economy good." It is "there are different ways to organize value, and they produce different outcomes." Let participants draw their own conclusions. Some may defend competition; this is a valid perspective to engage with, not to correct.

**Age-critical:** For ages 8–10, keep Round 1 very short (8 minutes) and Round 2 simple (2 elements instead of 4 — Cooperation and Mutualism are enough). The Gold/Regeneration concept is abstract for young children; replace it with "making things better" and use green tokens for all positive actions. For ages 15–18, add complexity: introduce the Collective Threshold Model by having the group collectively decide how to fund a snack break using the four pathways.

## Seasonal Variations

Season	Game Adaptation
<b>Spring</b>	Round 2 outdoor activities focus on planting — Regeneration tokens dominant. "You're creating value that will grow for months after you leave."
<b>Summer</b>	Harvesting and sharing — Mutualism tokens dominant. "The garden is giving freely. Can your economy do the same?"
<b>Autumn</b>	Processing and preserving — Cooperation tokens dominant. "Turning harvest into stored food takes many hands."
<b>Winter</b>	Repair and indoor making — Reciprocity tokens dominant. "Teaching each other repair skills is the purest reciprocal exchange."

## Evaluation

*Fulfils BNE criterion 5.2.1 (documented reflection) and supports 5.2.2 (systematic self-evaluation for recurring programs).*

**During the workshop:** The Value Flow Map (token cards pinned by element column) is the primary evaluation artifact. Photograph at end of each session for cumulative comparison across groups.

**End-of-session feedback (5 minutes):** Adapt delivery by age: - *Ages 8–12*: Three-question thumb/star card (printed): "Which round felt more fair? ★★★" · "I can name the four elements: Yes / Almost / Not yet" · "I'd try this at school: Yes / Maybe" - *Ages 13–18*: Brief open reflection: "The biggest difference between Round 1 and Round 2 was \_" / "**One question I still have about this economy: \_**"

**Facilitator record per session:** Token card count by element (from Value Flow Map photo); group size and age range; one qualitative observation about the Round 1/Round 2 contrast; any adaptations made.

**Longitudinal:** Compare Value Flow Maps across sessions — do certain elements cluster by group type or season? This data informs annual curriculum review.

## Proxemic Design Notes

**The Round 1/Round 2 spatial contrast is the primary proxemic teaching tool.** The sociofugal architecture of Round 1 (table barrier, queue, isolation) and the sociopetal architecture of Round 2 (open movement, clustering, face-to-face collaboration) produce a visceral, bodily experience of the difference between extractive and reciprocal economies. Children feel the difference before they can name it. The debrief should make the spatial shift explicit: "Notice how you moved differently. Notice where you stood. Notice who you faced."

**Token card stations should be at the activity, not at a desk.** When children fill in token cards while their hands are still dirty from the garden, or while the repaired object is still warm, or while the planting soil is still on their knees, the card-writing is a proxemic extension of the activity. Moving to a desk to fill in cards introduces public-distance abstraction that the token economy is designed to resist.

**The Value Flow Map as collective proxemic object.** The large wall chart where completed token cards are pinned should be at child-reachable height. Pinning a card is a haptic proxemic engagement — the child physically places their contribution into the collective visual. If the chart is above reach, or if the facilitator pins cards on behalf of children, the participatory proxemic quality is lost.

**The closing circle:** Arrange sociopetally — everyone facing inward, holding their favorite token card. The card is a mediating object that gives each child something physical to hold while speaking to the group. This reduces the proxemic vulnerability of speaking in a circle (no empty hands, attention directed at the card as well as the speaker).

---

---

## Guide 2: Sehen, was wir schon tauschen — Seeing What We Already Exchange

### For Adults and Families (Open Community Format)

#### Overview

<b>Title</b>	Sehen, was wir schon tauschen / Seeing What We Already Exchange / Widzieć, czym już się dzielimy
<b>Target Group</b>	Adults, families, Repair Café participants, Open Makerspace Day visitors, local community members
<b>Group Size</b>	8–20
<b>Duration</b>	2.5–3 hours (weekend afternoon, or integrated into a Repair Café or Open Makerspace Day)
<b>Location</b>	Zone A (Circular Economy Workshop) or Zone E (Heritage Hub), with outdoor component in Zone B
<b>4A-Pathway Focus</b>	Acknowledgment (recognizing the reciprocal exchanges already happening in your life) and Action (choosing to participate in the token economy)
<b>Practical Connection</b>	Repair Café, Precious Plastic workshops, garden exchange, tool library, neighborhood mutual aid
<b>Prerequisite</b>	None; this guide works as a standalone introduction or as a deeper engagement for returning participants
<b>SDGs Addressed</b>	SDG 10 (Reduced Inequalities) · SDG 11 (Sustainable Cities & Communities) · SDG 12 (Responsible Consumption & Production) · SDG 17 (Partnerships for the Goals)
<b>Sustainability Dimensions</b>	Economic ✓✓ (exchange mapping, Collective Threshold Model) · Social ✓✓ (community building, mutual aid visibility) · Cultural ✓ (local repair culture, community memory) · Ecological ✓ (repair reduces consumption and waste)

<b>BNE Gestaltungskompetenzen</b>	4.1.3 Interdisciplinary action · 4.2.1 Collective planning and action · 4.2.3 Participate in decision-making · 4.3.2 Self-directed planning and action
<b>Dilemma / Controversy</b>	Community trust vs. formal institutional accountability · Informality vs. legibility/auditability · Who defines what "counts" as a contribution? · Voluntary participation vs. the need for systemic change
<b>Global-Local Connection</b>	Local Repair Café practice ↔ global Repair Café International network · Local mutualism ↔ global OER commons · Local token economy ↔ Stellar blockchain interoperability
<b>Facilitator Qualification</b>	Community facilitation experience; familiarity with Repair Café methodology; basic knowledge of Stellar/token system; comfort facilitating open, skeptical dialogue with adult participants
<b>Accessibility</b>	Zones A and E fully accessible; Exchange Mapping worksheet available in large print; repair activities adapted for varying mobility levels; hearing loop available in Zone E
<b>Pre-Workshop Materials</b>	Erdpuls portal ( <a href="http://erdpuls.ubec.network">erdpuls.ubec.network</a> ) describes Collective Threshold Model; Exchange Mapping worksheet downloadable as OER; Repair Café pre-registration available
<b>Evaluation Method</b>	See Evaluation section below

## The Pedagogical Challenge with Adults

Adults have the most deeply ingrained assumptions about economics. Most have spent decades in wage labor, consumer markets, and transactional relationships. "You get what you pay for" is not just a saying — it is an epistemology. The idea that a neighbor sharing tomatoes and an engineer maintaining a sensor network are performing economically equivalent acts seems, at first, absurd.

The approach for adults is therefore not to argue against their experience but to reveal what their experience already contains. Most adults already participate in reciprocal economies — they just don't call them that. They help a neighbor move furniture and the neighbor watches their cat. They share gardening tips over the fence. They bring cake to a community gathering and eat someone else's salad. They teach a grandchild to ride a bicycle and receive the gift of being needed.

The workshop makes these invisible exchanges visible, names them using the four-element framework, and then invites participants to consider what would change if these exchanges were structurally recognized rather than informally assumed.

## Preparation and Materials

- Token cards (as in Guide 1, but with more writing space — adults will describe activities in greater detail)
- "Exchange Mapping" worksheets (A3 sheets with a central circle marked "ME" and radiating lines to blank circles where participants map their existing reciprocal relationships)
- Flip chart or whiteboard
- The Erdpuls sensor dashboard on a screen (to demonstrate the data-commons dimension)
- A "Repair Café Exchange Tracker" — a sample paper form showing how a Repair Café interaction generates token value
- Tea/coffee and garden snack
- A printed one-page summary of the Collective Threshold Model (take-home)

## Welcome and Framing (15 minutes)

Gather in Zone A or Zone E, seated comfortably.

"I want to start by asking you to think about the last week. Not at work — in the rest of your life. Did you help anyone? Did anyone help you? Did you share anything — a tool, a recipe, advice, a ride, your time? Did you make anything that benefited someone besides yourself?"

Pause. Let people think.

"Most of us did at least three or four of these things in the last week. And none of them showed up in any economic measurement. No GDP calculation includes the neighbor who fixed your fence. No tax record captures the grandmother who taught her grandson to cook. No market price reflects the fact that you brought a homemade cake to the Repair Café.

But all of these are economic acts. They create real value. They sustain real communities. They are the economy that actually keeps Müllrose alive — not the formal one. Today we make that economy visible."

## The Experience: Phase 1 — Exchange Mapping (30 minutes)

Each participant receives an Exchange Mapping worksheet. In the center: "ME." Radiating outward: blank circles.

**Task:** "In each surrounding circle, write the name of a person or group you've exchanged something with in the last month. Draw an arrow showing what flowed from you to them, and another arrow showing what flowed back. It doesn't have to be material — time, knowledge, emotional support, a ride to the doctor, lending a tool — all count."

Participants work individually for 15 minutes. Then pairs share their maps with each other for 10 minutes. The facilitator observes and notes recurring themes.

---

**Group Debrief (5 min):** "How many exchanges did most people find?" (Usually 8–15.) "How many of these involved money?" (Usually 1–3.) "Where is most of the real economic activity in your life happening?" (Outside the market.)

*Proxemic enrichment:* Ask participants to notice the proxemic distance at which their mapped exchanges typically occur: "Most of your reciprocal exchanges — the neighbor who watches the cat, the friend who shares garden surplus — happen at personal or intimate distance. Face to face, hand to hand, often in a kitchen or a garden. Now think about your transactional exchanges — buying at a store, paying a bill online. What proxemic distance are those? Social? Public? Virtual — no physical distance at all?" Pause. "The reciprocal economy is a personal-distance economy. The market economy is a public-distance economy. What information gets lost when you can no longer see, hear, smell, or touch what is being exchanged?"

"What you've just mapped is your existing reciprocal economy. It already works. It has always worked. The question we're exploring today is: what would happen if we made it visible, named its elements, and connected it to a wider network?"

## The Experience: Phase 2 — The Four Elements (30 minutes)

Introduce the four token elements, but not as abstractions — as lenses for re-reading the exchange maps.

**Exercise:** "Look at your map again. For each exchange you recorded, decide which element it most closely represents. Mark it with the appropriate color."

- **Green (Cooperation):** We worked together on something. The value was created by the collaboration, not by either of us alone.
- **Blue (Reciprocity):** I gave something and received something — not necessarily equal, not necessarily simultaneous, but there was a two-way flow.
- **Orange (Mutualism):** I contributed to something that benefits people beyond my immediate circle — a community garden, a shared resource, open knowledge, a public space.
- **Gold (Regeneration):** I restored, repaired, or improved something — leaving it better than I found it. A repaired bicycle, a composted garden bed, a taught skill that will outlive me.

Walk the room while participants re-code their maps. Help with edge cases: "Is lending a lawnmower Cooperation or Reciprocity?" (Depends — did you use it together, or did they use it alone and return it? The distinction matters.) "Is volunteering at the school Mutualism or Cooperation?" (Mutualism, because the benefit extends to children you may never meet.)

**Group Synthesis:** Each participant counts their color distribution. The facilitator tallies on the flip chart:  
- Total Green (Cooperation): - **Total Blue (Reciprocity):** - Total Orange (Mutualism): - **Total Gold (Regeneration):**

---

"Look at the distribution. Which element dominates? Which is weakest? What does that tell us about the invisible economy of this community?"

In most groups, Reciprocity dominates (neighbor-to-neighbor exchange is the most common pattern), Cooperation appears around specific projects (building, gardening, events), Mutualism is present but often unrecognized ("I didn't think of volunteering as an economic act"), and Regeneration is the rarest and most novel concept.

### The Experience: Phase 3 — The Repair Café as Token Laboratory (45 minutes)

*Proxemic framing:* The Repair Café is the toolkit's most vivid proxemic demonstration of reciprocal economics in action. The repair interaction places two people at personal-to-intimate distance around a shared object, using all sensory channels: inspecting the mechanism visually, smelling the burnt component, feeling for loose connections, listening for the click of a properly seated part. This multi-sensory, close-distance, collaborative diagnostic process is the proxemic signature of the reciprocal economy — and it contrasts sharply with the social/public-distance, visual-only, individual experience of buying a replacement at a store.

If the workshop coincides with a Repair Café session (ideal), or if a Repair Café can be simulated:

"Let's trace the token economy of a single repair. Maria brings a broken toaster. Hassan, a volunteer repair coach, examines it, teaches Maria what's wrong, and they fix it together. Let's map the value flows."

#### On the flip chart, trace the exchange:

1. Maria brings the toaster and her willingness to learn → she contributes her time and an object to be saved
2. Hassan contributes his diagnostic skill and his teaching → he contributes knowledge
3. Together they repair the toaster → **Cooperation** (they worked together; neither could have done it alone)
4. Maria learned to diagnose a common toaster fault; Hassan learned about a brand he hadn't seen before → **Reciprocity** (both gained knowledge they didn't have)
5. The toaster works again instead of going to landfill → **Regeneration** (an object's life extended, waste prevented)
6. Maria tells her neighbor about the Repair Café; her neighbor comes next month → **Mutualism** (the benefit extends beyond the original participants)

"One broken toaster generated four kinds of value. In a conventional economy, the only thing measured would be: 'toaster not purchased, revenue lost to the electronics industry.' In the token economy, four things are celebrated."

---

**Live Practice:** If a Repair Café is running, each participant observes or participates in one repair and fills out a "Repair Token Tracker" — a simple form identifying which elements the repair generated.

If no Repair Café is running, groups of 3–4 simulate an exchange using items or skills they brought (the facilitator can prepare prompt cards: "You know how to sharpen knives," "You have a bag of seeds to share," "You can translate German to Polish," "You know the history of this building").

### The Collective Threshold Model (20 minutes)

"Now let's talk about something practical. This workshop cost something to run — my time as facilitator, the materials, the space, the tea and cake. In a conventional economy, there's a price, and you either pay it or you don't come. What if there were four ways to participate?"

*Proxemic note:* The four participation pathways correspond to different proxemic relationships with the Erdpuls community. A Full Rate participant may be encountering the campus for the first time — social or public proxemic distance. A Token Pathway participant has accumulated tokens through sustained proxemic engagement: maintaining sensors (intimate distance with technology), caring for the garden (intimate distance with soil), facilitating workshops (personal distance with participants). The Token Pathway participant's access was earned through *proximity* in the deepest sense — repeated, multi-sensory, embodied engagement with place and community. The Collective Threshold Model is a system that rewards closeness with access.

Present the four pathways on a flip chart:

**Full Rate:** You pay the published cost. Simple, transparent, no stigma. **Supported Rate:** You pay what you can. The difference comes from the common fund (built up by Full Rate surpluses). You choose this yourself — no one checks, no one judges. **Skills Exchange:** You contribute something instead of money — facilitate next month's session, translate the materials, bring garden produce, help with campus maintenance. **Token Pathway:** You've already contributed to Erdpuls through previous activities — sensor maintenance, data entry, community outreach. Your accumulated tokens cover the cost.

"The result is that the people who know the most about this place — the people whose participation makes the workshop richer — can always come. The grandmother with no spare euros but forty years of soil knowledge enters through Skills Exchange or Token Pathway. The young professional who can afford the full rate subsidizes the grandmother's access without ever knowing it. The economy becomes a commons, not a gate."

**Discussion prompt:** "Which pathway would you choose today? And is there a skill or contribution you could imagine exchanging instead of money?"

This discussion often surfaces surprising resources: "I have a truck and could transport materials," "I am a retired electrician," "I speak Polish and could translate," "I have photographs of Müllrose from the 1970s." The Skills Exchange pathway makes visible the wealth of capacity that exists in any community but is never counted by conventional economics.

---

## Sensor Dialogue (10 minutes)

"One more dimension. Let me show you the Erdpuls sensor dashboard."

Display the real-time data.

"This sensor network generates data every five minutes — soil temperature, humidity, air quality. The data is published openly. Anyone in the world can access it. That is Mutualism operating at machine scale: the sensor gives without being asked, and the benefit extends to people who will never visit this campus.

When you contribute citizen science observations — species counts, soil descriptions, weather notes — your data joins this stream. The token economy recognizes that contribution. A Mutualism token records: 'On this date, this person added this data to the open commons.' The contribution is small; the cumulative effect, over years and across many contributors, is a body of place-knowledge that no institution could build alone."

## Closing and Reflection (20 minutes)

Circle. Tea and cake.

*Proxemic note:* The closing circle with shared food and drink is strongly sociopetal — it gathers participants into personal distance with warm beverages and food as mediating objects. This is the same proxemic architecture as the reciprocal exchanges participants mapped earlier: face to face, hand to hand, all sensory channels active. The workshop ends in the proxemic mode it has been describing all afternoon. The facilitator should recognize this if it serves the moment: "Notice where we are right now — in a circle, sharing food, at arm's reach from each other. This is what the reciprocal economy feels like. It feels like this."

Each participant shares one thing: - "One exchange from my map that I now see differently" - OR "One thing I could contribute to Erdpuls through Skills Exchange" - OR "One question I still have about this model"

The facilitator offers the printed Collective Threshold Model summary as a take-home, along with the Exchange Mapping worksheet (participants keep their own) and 2–3 blank token cards: "If you do something in the next week that you think generates Cooperation, Reciprocity, Mutualism, or Regeneration value, fill out a card. Bring it to the next Open Makerspace Day. We'll add it to the record."

## Follow-Up and Continuation

- **Open Makerspace Day:** Bring completed token cards from the week; join the regular token-tracked activities
- **Repair Café:** Now experienced as a token-generating practice, not just a free service
- **Garden participation:** Seasonal work in Zone B generates Regeneration and Cooperation tokens

- 
- **Sensor maintenance volunteers:** Technical participants can adopt a sensor station — a Mutualism-generating practice
  - **Collective Threshold Fund:** Full Rate participants now understand that their payment supports community access; this may increase willingness to pay above the minimum

## Facilitator Notes

**The Exchange Mapping exercise is the anchor.** Everything follows from it. If participants map their own exchanges honestly, the four elements become self-evident — they are not imposed theory but recognized patterns in existing behavior. The workshop's power lies in this recognition: "I was already doing this. I just didn't have a name for it."

**Skepticism is welcome.** Some adults will resist: "This sounds like communism." "Who decides what's valuable?" "What stops people gaming the system?" These are genuine questions and should be engaged directly. The answer to the first is: "No — this is not state allocation. It's community recognition of value that already exists." The answer to the second is: "You do — by participating, you co-define value." The answer to the third is: "In a community where you see your neighbors regularly, social trust is the most powerful audit mechanism."

**Families:** Children present during the adult workshop absorb the concepts through the Repair Café practice and the Garden Market. They do not need the theoretical framing — watching their parent map exchanges and then physically repairing a toaster together teaches the principles viscerally.

## Evaluation

*Fulfils BNE criterion 5.2.1 (documented reflection) and supports 5.2.2 for programs run more than once.*

**Primary artifact:** The Repair Token Tracker forms completed during the session serve as both learning tool and evaluation data. Collect after the workshop; photograph before returning to participants.

**End-of-workshop prompt (5 minutes, verbal or written):** "The most valuable thing I noticed about my own exchanges today was: \_" "**One exchange I now see differently:** \_" "A skill or contribution I could bring to Erdpuls through Skills Exchange: \_\_\_\_"

**Facilitator record per session:** Number of exchanges mapped per participant; participation pathway chosen; most common skeptical objection raised and how the group addressed it.

**Longitudinal indicator:** Track Skills Exchange offers surfaced — are they acted upon? Do participants return for Repair Café or Open Makerspace Day? Token activity after the workshop is the long-term outcome measure.

---

## Proxemic Design Notes

**The Exchange Mapping exercise reveals proxemic economics.** When participants map their existing exchanges and then color-code them by element, a spatial pattern emerges: reciprocal exchanges cluster at personal/intimate distance (face to face, in homes, gardens, workshops), while transactional exchanges extend to social/public/virtual distance (shops, offices, screens). The proxemic enrichment question — "At what distance do your reciprocal exchanges happen?" — makes this pattern explicit and transforms the exercise from an economic audit into a spatial revelation.

**The Repair Café worktable as proxemic center.** The shared repair table should be large enough for two people to lean over together, without a "front" or "back" — participants around all sides. This is the socio-petal core of the workshop's practical phase. The repair object at the center is the proxemic mediator: it gives both people a reason to be at personal distance, a shared focus for all sensory channels, and a common project that creates Cooperation without requiring it to be verbally negotiated.

**Token card placement matters.** The "Repair Token Tracker" forms should be filled in at the repair table, not at a separate administrative station. Filling in the card *at the moment of exchange* maintains proxemic connection between the activity and its recognition. Filling in cards later at a desk introduces the public-distance abstraction that the token economy is designed to resist.

---

---

# Guide 3: Der Erinnerungsmarkt — The Memory Market

## For Elders and Intergenerational Groups

### Overview

<b>Title</b>	Der Erinnerungsmarkt / The Memory Market / Targ Wspomnień
<b>Target Group</b>	Older residents (60+), ideally paired with younger participants for intergenerational exchange
<b>Group Size</b>	8–16
<b>Duration</b>	2–2.5 hours (morning format, with extended Kaffee und Kuchen)
<b>Location</b>	Zone E (Heritage & Community Hub) — indoor, comfortable, with garden access for the practical phase
<b>Season</b>	Winter is ideal (indoor focus, reflection season, memory season); also works in autumn
<b>4A-Pathway Focus</b>	Acknowledgment (recognition that elder knowledge is genuine economic value) and Attitude (intergenerational responsibility as economic principle)
<b>Unique Value</b>	The workshop <i>is</i> the token economy in action: elders contribute knowledge, receive recognition and access
<b>SDGs Addressed</b>	SDG 4 (Quality Education) · SDG 10 (Reduced Inequalities) · SDG 11 (Sustainable Cities & Communities) · SDG 16 (Peace, Justice & Strong Institutions — intergenerational justice)
<b>Sustainability Dimensions</b>	Social ✓✓ (intergenerational exchange, community cohesion) · Cultural ✓✓✓ (memory, oral history, heritage) · Economic ✓ (elder knowledge as economic capital, Skills Exchange) · Ecological ✓ (traditional ecological and phenological knowledge)

<b>BNE Gestaltungskompetenzen</b>	4.1.1 Open to new perspectives · 4.2.4 Motivate self and others · 4.3.3 Empathy · 4.3.4 Justice as basis for action
<b>Dilemma / Controversy</b>	Preservation vs. transformation of knowledge · Oral tradition vs. digital archiving (does documentation equal loss?) · Recognition vs. commodification of elder knowledge · Who decides which knowledge should survive?
<b>Global-Local Connection</b>	Local Müllrose memory ↔ global crisis of traditional knowledge loss (UNESCO Intangible Cultural Heritage frameworks) · Local elder skills ↔ international Heritage Craft movements
<b>Facilitator Qualification</b>	Experience facilitating elder groups; trauma-aware practice (wartime and displacement memories may arise); basic oral history methodology; patient and flexible pacing; ability to scribe on behalf of participants
<b>Accessibility</b>	Zone E fully accessible; large-print materials standard for this guide; voice-to-text recording option available; no standing activities required; hearing amplification available
<b>Pre-Workshop Materials</b>	Participants invited in advance with object prompt ("bring something with a story"); Collective Threshold Model summary in large print; audio recording consent form available in advance
<b>Evaluation Method</b>	See Evaluation section below

## The Core Principle: Memory as Capital

In a conventional economy, retirement marks the end of economic participation. An elder who no longer earns a wage is classified as an economic dependent — a consumer, not a producer. This is a profound misrecognition. Elders hold accumulated knowledge, relational networks, cultural memory, practical skills, and ecological observation that constitute irreplaceable community capital.

The reciprocal token economy structurally corrects this misrecognition. In the four-element framework, elder contributions are recognized as high-value acts: sharing historical knowledge is Reciprocity (knowledge flows both directions), contributing memories to the archive is Mutualism (the community benefits permanently), teaching traditional skills is Cooperation, and maintaining cultural continuity is Regeneration.

This workshop makes these contributions tangible by staging a "Memory Market" — not a commercial market, but an exchange where the currency is memory, skill, and story, and where the token system makes visible what conventional economics renders invisible.

## Preparation and Materials

- Token cards (as in previous guides, with larger print for readability)
- "Memory Offering" cards (A5 sized, large print): pre-printed with prompts for elders to describe what they can offer (see below)
- "Seeking" cards (A5 sized): for younger participants to describe what they want to learn
- A ledger book or poster: "The Memory Market Ledger" — a visible record of all exchanges made during the session
- Audio recorder (with consent forms) for capturing stories
- Comfortable seating, good lighting, warm beverages
- Objects for the "Object Memory" exercise: each elder is asked to bring one object from home that has a story (a tool, a photograph, a piece of fabric, a seed, a kitchen utensil — anything with memory attached)

## Welcome and Framing (15 minutes)

Seated comfortably. Warm beverages served immediately — the atmosphere should be Kaffeeklatsch, not classroom.

*Proxemic design:* The immediate offering of warm beverages is a deliberate proxemic move. It places a warm, fragrant object in the elder's hands (haptic and thermal channels activated), establishes the room as sociopetal (chairs arranged inward, shared table with drinks and food at the center), and signals personal-distance intimacy rather than social-distance formality. The Kaffeeklatsch atmosphere is not incidental — it is the proxemic environment in which elder knowledge flows most naturally. Hall's research showed that shared food and drink are among the most powerful mechanisms for reducing interpersonal distance in any culture.

"In Müllrose, as in many small towns, there are people who know things that no book records and no internet contains. [Name] knows which apple varieties grew in the gardens along Schlossstraße before the war. [Name] knows how to repair a traditional Backsteinofen. [Name] knows where the spring is that used to feed the pond that no longer exists.

This knowledge is priceless — literally: no market has a price for it, because no market recognizes it as valuable. Today we create a market that does.

The Memory Market works like this: each of you has something to offer — a skill, a memory, a story, a way of doing things. Each younger participant has something they want to learn. We match offerings to seekings, the exchange happens, and the token system records it. By the end of this morning, the ledger will show what everyone has contributed, and what everyone has gained. Nothing is lost; everything is counted."

## The Experience: Phase 1 — Memory Offerings and Seekings (25 minutes)

**Elder participants** receive Memory Offering cards with prompts:

*What I Know:* - A skill I can teach (repairing, cooking, gardening, building, sewing, preserving...): \_ - **A place in Müllrose/the region I know the history of:** - *A natural sign I can read (weather, soil, plants, animals):* \_ - A recipe, remedy, or technique I learned from my parents or grandparents: \_ - **A story about this landscape that should not be forgotten:** \_\_\_\_\_

*What I'd Like to Learn:* - Something about technology, science, or the modern world I'm curious about:  
\_\_\_\_\_

**Younger participants** receive Seeking cards:

*What I Want to Learn:* - A practical skill from the past: \_ - **The history of a place I walk through every day:** - *How things used to be done (farming, cooking, building, celebrating):* \_ - A story about Müllrose that I've never heard: \_\_\_\_\_

*What I Can Offer:* - Something I know about technology, the internet, phones, computers: \_ - **A language I speak:** - *Physical help (carrying, digging, cleaning, building):* \_ - A fresh pair of eyes on a problem: \_\_\_\_\_

Everyone fills out their cards (15 min). The facilitator helps elders who may have difficulty writing — verbal dictation is perfectly acceptable.

**The Matching (10 min):** Cards are pinned to a board or laid on a table. The facilitator reads offerings and seekings aloud. Natural matches emerge: the elder who knows traditional mortar techniques is paired with the teenager who wants to learn heritage building. The grandmother who can identify every plant in the hedgerow is paired with the young adult who wants to learn foraging. The retired electrician who wants to understand smartphones is paired with the teenager who wants to learn wiring.

## The Experience: Phase 2 — The Exchanges (45 minutes)

Matched pairs or small groups move to appropriate spaces on campus: - Practical skill demonstrations  
→ Zone A or garden - Story and memory sharing → Zone E (seated, recorded with consent) -  
Technology teaching → wherever comfortable with a device available

Each exchange lasts 20–25 minutes. During the exchange, both participants fill out token cards:

**The elder's token card (Reciprocity — Blue):** "I shared: [what they taught/told]. I learned: [what the younger person showed them]. This is Reciprocity because: value flowed in both directions."

**The younger participant's token card (Reciprocity — Blue):** "I learned: [what the elder shared]. I shared: [what they taught the elder]. This is Reciprocity because: we both gained something we didn't have before."

---

**A second token card (Mutualism — Orange):** Both participants complete: "Our exchange benefits others because: [the story is now recorded for the archive / the skill can be taught again / the recipe is preserved / the technique is documented]."

### The Experience: Phase 3 — The Object Memory Circle (20 minutes)

Return to Zone E. Circle, seated.

*Proxemic note:* The Object Memory Circle is one of the most proxemically rich moments in the entire token economy series. When an elder holds a hand-forged tool and tells its story, the object circulates — passed hand to hand around the circle. Each passing is a proxemic event: the giver briefly enters the receiver's personal space; the object carries warmth and texture from the previous hands; the momentary shared grip creates an instant of intimate proxemic contact mediated by the artifact. This is not accidental — it is the proxemic mechanism by which memory transfers between generations. The facilitator must ensure that objects are physically passed, not displayed from a distance or held up for the group to see. The passing itself — the weight of the tool settling into new hands, the warmth of the seed packet, the worn edges of the photograph — is where the economic exchange of memory becomes embodied.

Each elder holds their brought object and tells its story — briefly, 2–3 minutes. The object becomes a window into economic, ecological, and cultural history:

- A hand-forged garden tool: "My grandfather made this. The metal came from [where]. It's been sharpened a hundred times. I used it to turn the soil in my first garden in 1964."
- A seed packet, hand-labeled: "These are the beans my mother grew every year. She saved the seeds. I still grow them."
- A photograph: "This is the garden at [address] before the building was demolished. Look at the fruit trees."

After each story, the facilitator asks the group: "What token elements does this object represent?" The answers reveal the depth of the framework: - The hand-forged tool is **Regeneration** (it has been maintained across generations instead of replaced) and **Cooperation** (grandfather made it, grandmother used it, the elder maintains it). - The seeds are **Mutualism** (they benefit future gardeners) and **Regeneration** (they sustain genetic diversity). - The photograph is **Mutualism** (it preserves knowledge of a lost landscape) and **Reciprocity** (sharing it gives the group knowledge and gives the elder the satisfaction of being heard).

### The Memory Market Ledger (10 minutes)

The facilitator compiles all token cards from the session into the Memory Market Ledger — a visible, physical record displayed in Zone E.

*Proxemic note:* The Ledger should sit at the center of the circle, not on a side table or administrative desk. When an elder leans forward to write an entry — or dictates while the facilitator writes — the physical movement into the circle's center is a proxemic enactment of contribution to the commons. The Ledger itself becomes a mediating object, like the shared meal: something at the center that draws everyone's attention and creates a shared proxemic focus. Over time, as the Ledger fills across multiple sessions, it becomes a cumulative record of personal-distance economic activity — every entry representing an exchange that happened face to face, hand to hand, at close range.

Each entry reads:

*[Date]. [Elder name] and [younger name] exchanged [what]. Token elements generated: [list]. This exchange benefits the community because: [statement].*

"This ledger is the beginning of a visible record of Müllrose's knowledge economy. Every entry says: this knowledge exists, this person holds it, this exchange happened, this value was created. No GDP measurement will ever count what's in this ledger. But every person in this room knows it's real."

### Closing and Collective Threshold Explanation (15 minutes)

"One more thing. Some of you may wonder: why should I come back? I don't have money for workshops. Or: I'm too old for this modern stuff.

Let me explain how Erdpuls works. Every workshop has a real cost. But there are four ways to participate."

Explain the four pathways. Emphasize: "The Skills Exchange and Token Pathways exist because of you. Your knowledge is your entry. The Repair Café needs someone who knows how to fix a Miele washing machine from 1987 — that person can attend any workshop in exchange for teaching that skill. The sensor network needs someone who remembers where the old springs were — that memory is worth as much as a programming course."

Distribute the Collective Threshold summary sheet.

"You are not recipients of charity. You are contributors to a commons. The token economy is the mechanism that makes your contribution count."

### Facilitator Notes

**Dignity is paramount.** The entire guide is designed to position elders as knowledge-holders, not as beneficiaries of a social program. Every element — the seating, the beverages, the Object Memory Circle, the ledger — communicates: "Your contribution is valuable and valued." If any element of the workshop makes an elder feel patronized, the design has failed.

**Pacing is different.** Elders process and share differently than younger adults. Stories are longer, beginnings are slower, connections are deeper. The facilitator's role is to create space, not to manage time. If the Object Memory Circle runs 20 minutes over schedule, that is the correct outcome.

**Hearing and vision.** Speak clearly, face participants, ensure lighting is adequate for reading and writing. Offer to scribe for any participant who prefers verbal contribution.

**The intergenerational pairing is the magic.** When a 75-year-old teaches a 16-year-old to sharpen a knife and the 16-year-old teaches the 75-year-old to use a soil moisture app, both are transformed. The elder feels relevant; the young person feels connected to a lineage. This is Reciprocity made tangible, and it is the workshop's greatest gift.

## Evaluation

*Fulfills BNE criterion 5.2.1 (documented reflection) and 5.2.2 for recurring sessions.*

**Primary artifact:** The Memory Market Ledger is the definitive evaluation document. Each session's entries constitute a permanent record of exchanges completed, token elements generated, and community benefit stated. Review the Ledger before each new session for continuity.

**During the session:** Facilitator notes: number of elder-youth pairs formed; number of Object Memory stories shared; any exchanges that generated a notably rich Ledger entry.

**End-of-session feedback (conversational — written questionnaires are not appropriate for this group):** Ask elders one question as they leave: "How did it feel to have your knowledge recognized today?" Record one response per session. Ask younger participants: "What will you remember from today's exchange?"

**Longitudinal:** Is the Ledger growing across sessions? Are elders returning for a second visit? Are specific elder-youth pairs continuing their exchange outside the workshop? These are the long-term outcome indicators for Guide 3.

## Proxemic Design Notes

**The vertical inversion in intergenerational exchange:** When paired for a practical skill demonstration, the elder typically sits (at table or chair height) while the younger partner stands, kneels, or moves to retrieve materials. This spatial arrangement inverts the usual age-power vertical dynamic: the elder is above, directing, the authority; the youth is below, working, the hands. When the exchange reverses (the youth teaches the elder to use a phone), the vertical positions may shift — the youth leans over the elder's shoulder. Both arrangements communicate respect through spatial positioning. The facilitator should notice these vertical dynamics and appreciate them: they are proxemic signals of the reciprocal exchange in action.

**Physical accessibility as proxemic accommodation:** Not all elders can move to activity stations. The response is the same as in the soil guides: move the activity to the elder. If a practical demonstration requires tools or materials, bring them to the elder's seated position rather than asking the elder to relocate. This maintains the elder's proxemic dignity — they remain at the center of the exchange, not at its periphery.

---

**The Kaffeeklatsch is the proxemic infrastructure of the workshop.** The warm beverages, the comfortable seating, the circular arrangement, the food — these are not hospitality extras. They are the proxemic conditions under which elder knowledge flows. Remove them and the workshop becomes a formal interview at social distance, producing thin, guarded responses. Maintain them and the workshop becomes a kitchen-table conversation at personal distance, producing the rich, associative, emotionally grounded testimony that constitutes the Memory Market's real value.

**Pacing as proxemic respect:** Abrupt spatial transitions jar elderly participants. The movement from Exchange Phase (distributed across campus) to Object Memory Circle (gathered in Zone E) to Ledger (focused on the center) should be gradual, with verbal cues: "Let's come back together now. Take your time. Bring your tea." Each transition allows participants to adjust physically and attentionally to the new proxemic arrangement.

---

# Guide 4: Wert jenseits des Preises — Value Beyond Price

## For Artists and Researchers (Residency-Depth Immersion)

### Overview

<b>Title</b>	Wert jenseits des Preises / Value Beyond Price / Wartość poza ceną
<b>Target Group</b>	Artists-in-residence, visiting researchers, citizen science fellows
<b>Group Size</b>	1–6 (intimate seminar format)
<b>Duration</b>	Initial session: 2.5–3 hours. Ongoing integration throughout the residency.
<b>Location</b>	Zone E (seminar setting) + full campus access
<b>4A-Pathway Focus</b>	Attitude (examining one's own relationship to value, market, and commons) and Action (designing one's creative/research practice as a token-generating activity)
<b>Unique Value</b>	Artists and researchers are uniquely positioned to see — and challenge — the assumptions of conventional economics. Their creative output can model alternative value systems for a wider audience.
<b>SDGs Addressed</b>	SDG 4 (Quality Education) · SDG 9 (Industry, Innovation & Infrastructure) · SDG 11 (Sustainable Cities & Communities) · SDG 12 (Responsible Consumption & Production) · SDG 17 (Partnerships)
<b>Sustainability Dimensions</b>	Ecological ✓ (bio-material art, citizen science, soil observation) · Economic ✓✓ (creative economy critique, OER, open commons) · Social ✓ (community engagement, knowledge sharing) · Cultural ✓✓ (creative practice, heritage, alternative value systems)

<b>BNE Gestaltungskompetenzen</b>	4.1.2 Anticipatory / futures thinking · 4.1.4 Recognize risks and uncertainties · 4.2.2 Recognize conflicting goals · 4.3.1 Reflect own values / Leitbilder
<b>Dilemma / Controversy</b>	Artistic autonomy vs. community contribution · Intellectual property vs. open commons · Institutional validation (gallery, peer-review journal) vs. community recognition · Social credit risk vs. community trust · Scale vs. intimacy in the token economy
<b>Global-Local Connection</b>	Local residency practice ↔ global OER commons and open access movements · Local Stellar token ↔ global blockchain interoperability · Erdpuls campus ↔ VULCA international makerspace network
<b>Facilitator Qualification</b>	Familiarity with creative and research methodologies; experience with critical dialogue; deep knowledge of OER and open access principles; intellectual comfort with the genuine tensions and unresolved questions of the token economy (including willingness to say "we don't know yet")
<b>Accessibility</b>	Seminar format is flexible and adaptable; all materials published as OER; remote participation possible for some sessions; no physical activity required beyond optional campus exploration
<b>Pre-Workshop Materials</b>	Appendix B (Pattern Discovery Toolkit) to be read before the session; Erdpuls sensor dashboard explored in advance; optional: Value Autobiography questions shared ahead of time for pre-reflection
<b>Evaluation Method</b>	See Evaluation section below

## The Residency Context

Artists and researchers who come to Erdpuls typically operate within institutional systems that have their own value logic: galleries, grants, academic publishing, peer review, sales. These systems define what "counts" as valuable creative or intellectual work — and what doesn't. An artwork's market price, a paper's citation count, a grant's dollar amount: these are the metrics.

The reciprocal token economy proposes a parallel value system that recognizes contributions conventional metrics miss: the researcher who shares raw data openly instead of hoarding it for publication (Mutualism), the artist who teaches a technique to a local child (Reciprocity), the citizen scientist who maintains a sensor through a winter of unglamorous data collection (Cooperation + Regeneration).

---

This workshop is therefore not an introduction to the token economy (residents have typically already read the Appendix B documentation). It is a structured dialogue about value, markets, commons, and creative practice — using the four-element framework as a lens for examining the resident's own work.

## The Session: Part 1 — The Value Autobiography (45 minutes)

Seated, seminar-style. The facilitator begins:

"Before we talk about the Erdpuls token economy, I want to ask you to think about value in your own practice. We're going to do a quick exercise — a Value Autobiography."

**Writing exercise (20 min):** Each resident writes brief responses to:

1. *Describe the most valuable thing you have ever created. Now: valuable to whom? By what measure?*
2. *Describe something you created that was valuable but unmeasured — that generated no income, no citation, no exhibition, no recognition, but that you know mattered.*
3. *Describe an exchange with another person — creative, intellectual, practical — where both of you ended up richer without either of you spending money.*
4. *In your practice, what do you give away for free? Why? What does it cost you? What does it generate?*

**Sharing (25 min):** Each resident reads one response. The group discusses — not to judge, but to surface the assumptions about value that each practice carries.

*Proxemic note:* The Value Autobiography sharing should be arranged at personal distance — a small circle of chairs, no table barrier, close enough to read facial expressions and hear soft speech. The seminar format for this group is deliberately intimate: 1–6 people in a room designed for quiet conversation. This proxemic arrangement supports the vulnerability required to discuss one's relationship to value honestly. A lecture hall or conference table would push participants to social distance and produce more guarded, performative responses.

The facilitator listens for the recurring tensions: - Between market value and use value - Between proprietary knowledge and open knowledge - Between individual reputation and collective benefit - Between finished outputs (artwork, publication) and ongoing processes (teaching, maintaining, caring)

These tensions are exactly what the four-element framework addresses. But the facilitator does not yet introduce the framework — the tensions must be felt before the vocabulary is offered.

## The Session: Part 2 — The Four Elements as Artistic/Research Principles (45 minutes)

Now introduce the four elements, not as economic categories but as creative principles:

**Cooperation as Aesthetic:** "What does your work look like when it is made with others rather than alone? Not 'collaboration' in the art-world sense (two names on a gallery wall), but genuine cooperation — where the work could not exist without multiple hands, minds, perspectives?"

Examples: a collectively authored pattern language for a bioregion; a sensor network built by twenty hands; a mural painted by a village.

**Reciprocity as Method:** "What would it mean to make work that gives something to its audience and receives something back? Not a transaction (I sell, you buy) but a reciprocal flow — the work teaches the viewer something, and the viewer's response teaches the artist something?"

Examples: an installation that changes based on visitor interaction; a research project where participants are co-authors, not subjects; a bio-material process where the material teaches the maker.

**Mutualism as Distribution:** "What would it mean to distribute your work so that it benefits people who were not present at its making — people you'll never meet, in places you'll never visit? Not as charity, but as the natural overflow of creative abundance?"

Examples: OER publication (CC BY-NC-SA); open-source hardware designs; species observation data uploaded to iNaturalist; pattern cards entered into the commons.

**Regeneration as Legacy:** "What would it mean to make work that leaves its site better than it was? Not a monument (which is about the maker) but a restoration (which is about the place)? Art that heals rather than merely documents?"

Examples: a planting designed by an artist that also restores degraded soil; a research project that results in practical conservation recommendations; a text that enables future practitioners.

**Exercise:** Each resident identifies one element of their current residency project that aligns with each principle. Where the alignment is natural, note it. Where it doesn't fit, ask: "What would have to change in my practice for this element to be present?"

### The Session: Part 3 — Designing Your Residency as a Token-Generating Practice (45 minutes)

"Now let's get practical. During your residency, your daily activities will generate token-worthy contributions. Let's map them."

Each resident creates a "Residency Token Map" — a document that identifies:

Activity I plan to do	Days/ frequency	Primary element	Secondary element	Who benefits?
Daily soil observation (Three Morning Questions)	Daily	Cooperation (with the soil and sensor network)	Mutualism (data enters commons)	Future researchers, visitors

Activity I plan to do	Days/ frequency	Primary element	Secondary element	Who benefits?
Open studio / work-in-progress sharing	Weekly	Reciprocity (visitors offer responses, I offer process)	Mutualism (community engaged with creative work)	Local community, other residents
Teaching a technique to a workshop participant	2–3 times	Reciprocity (I teach, I learn about local context)	Regeneration (the skill persists after I leave)	The learner, their future practice
Final presentation / exhibition	Once	Mutualism (the work enters public discourse)	—	General public
Raw data / process documentation published as OER	End of residency	Mutualism (open access)	Regeneration (enables future work)	Global commons

This map becomes a working document for the residency — reviewed midway and at the end. It also generates the token records that enter the Erdpuls system.

### The Session: Part 4 — The Critical Dialogue (30 minutes)

The session closes with a facilitated discussion of the hard questions. Residents are often the most intellectually rigorous participants, and they will push the framework:

**"What is the proxemic dimension of value?"** The facilitator can offer: "Hall showed that as proxemic distance increases, emotional engagement decreases — the close-up is tragic, the long shot is comic. Citation counts, impact factors, and market prices are all *public-distance* metrics: they measure value from the farthest possible remove. What would an *intimate-distance* metric look like? One that could only be assessed by someone who had touched the work, spent time with it, been changed by it? The token economy's four elements might be such a metric — each requires proximity, embodied participation, and relationship to assess. You cannot evaluate Cooperation without being close enough to see how people worked together. You cannot verify Regeneration without intimate sensory contact with the site."

---

**"Doesn't tokenizing everything reduce it to a transaction?"** The facilitator's honest response:

"There's a real risk. The tokens should make visible what already exists — they should not create the incentive. If you only share data because of the Mutualism token, the system has failed. If you share data because it's the right thing to do and the token acknowledges it, the system has worked. The line is fine, and it requires ongoing vigilance."

**"How is this different from social credit scoring?"** "Social credit systems are top-down: a state assigns scores based on compliance. Token economies are bottom-up: a community recognizes contributions based on shared values. The critical difference is who defines value — the state, or the participants."

**"What about the artist who doesn't want to contribute to the commons — who believes art should be autonomous?"** "That's a legitimate position, and this framework doesn't require anyone to participate. But consider: is autonomous art actually autonomous? It exists in a gallery system, a market, an institutional framework. The question is not whether your work participates in an economy, but which economy it participates in."

**"Can the token economy scale, or does it only work in small communities?"** "This is the genuine challenge. The Stellar blockchain enables inter-site token recognition, so in theory, a Mutualism token earned in Müllrose can be recognized in a partner site in Portugal or Poland. But trust and relationship don't scale as easily as ledger entries. The honest answer is: we don't know yet. The residency community is part of finding out."

## Ongoing Integration Throughout the Residency

The initial session is a foundation. The four elements become a lens the resident carries:

- **Weekly check-in (15 min with facilitator):** "Which elements did your work engage this week? Which were absent? What would bring in the missing element?"
- **Mid-residency review:** Update the Residency Token Map. Has the project shifted? Have new token-generating activities emerged that weren't planned?
- **End-of-residency documentation:** A final token record, combined with the resident's creative/research output, enters the Erdpuls archive. The combination of economic documentation and artistic documentation is itself a novel form of publication.

## Facilitator Notes

**Intellectual honesty matters most with this group.** Artists and researchers will detect any hint of propaganda or sales pitch. The token economy has real limitations, genuine tensions, and unresolved questions. Present them. The most productive residency experiences come from residents who engage critically with the framework and push it further, not from those who accept it uncritically.

**Respect autonomy.** Some residents will be deeply engaged with the token economy; others will find it peripheral to their practice. Both responses are valid. The framework is offered as a resource, not imposed as a requirement.

## Evaluation

*Fulfils BNE criterion 5.2.1 (documented reflection) and, for the multi-week residency format, 5.2.2 (systematic self-evaluation with documented target-group feedback).*

**Primary artifact:** The Residency Token Map (developed in Part 3 and reviewed mid-residency and end-of-residency) is the formal evaluation instrument. It records planned vs. actual token-generating activities, shifts in the resident's understanding of value, and OER outputs produced.

**Mid-residency review (15 minutes):** Facilitated conversation using the Token Map. Key questions: "Which elements has your work engaged? Which were absent and why? Has the framework changed how you think about your practice?"

**End-of-residency documentation:** Combined token activity record and creative/research output enters the Erdpuls archive. The resident writes a one-page reflection: "How, if at all, did the token economy framework affect your work during this residency?"

**Facilitator record:** Quality of Critical Dialogue (Part 4) — which questions were raised, which tensions remained unresolved, what new questions emerged. These observations feed into ongoing framework development.

**Longitudinal:** Are OER outputs from residencies accessed and built upon? Do residents maintain connection with Erdpuls? Citation and re-use of resident-produced OER serves as a long-term Mutualism indicator.

## Proxemic Design Notes

**The seminar as proxemic intimacy.** The artist/researcher session operates at the smallest group scale (1–6 people) and the most intimate intellectual register. The spatial arrangement should match: a small circle of comfortable chairs, personal distance, no table barrier during the Value Autobiography and Critical Dialogue. A table is appropriate only during the Residency Token Map exercise, where participants need a writing surface — and even then, a shared table that participants lean over together is better than individual desks.

**Tokens as "proxemic certificates."** For this intellectually sophisticated group, the facilitator can introduce the concept: tokens are evidence that someone was close enough to an activity to know what it meant. A Cooperation token says "I was there, working alongside someone, at personal distance." A Regeneration token says "I was at intimate distance with a site, and I left it better." The token is not a payment — it is a proxemic record. This framing helps residents distinguish the token economy from social credit or gamification: the token does not incentivize behavior; it acknowledges *presence*.

---

**The weekly check-in as ongoing proxemic practice.** The 15-minute weekly check-in between resident and facilitator should be informal — a walk in the garden, a coffee in Zone E, a conversation at the resident's work site. Not a meeting in an office. The check-in's proxemic character (personal distance, casual movement, shared environment) models the relational economy it discusses.

---

# Guide 5: Eine Wirtschaft, Zwei Sprachen — One Economy, Two Languages

## For Cross-Border Groups (DE/PL Trilingual, Intercultural)

### Overview

<b>Title</b>	Eine Wirtschaft, Zwei Sprachen / One Economy, Two Languages / Jedna Gospodarka, Dwa Języki
<b>Target Group</b>	Mixed German-Polish groups, cross-border community events, European exchange programs
<b>Group Size</b>	12–24 (balanced German and Polish participants)
<b>Duration</b>	Full day (6–7 hours including shared meal) or two half-days
<b>Location</b>	Erdfpuls campus (Zone A and Zone E) + ideally a partner site in Lubuskie
<b>4A-Pathway Focus</b>	Full pathway; emphasis on Acknowledgment (cross-border economic interdependence already exists) and Action (designing cross-border reciprocal exchange)
<b>Unique Value</b>	The border zone is an economic laboratory — formal economies diverge (EUR/PLN, different wages, different regulations), but informal reciprocal economies have always crossed borders
<b>SDGs Addressed</b>	SDG 4 (Quality Education) · SDG 10 (Reduced Inequalities) · SDG 11 (Sustainable Cities & Communities) · SDG 16 (Peace, Justice & Strong Institutions) · SDG 17 (Partnerships for the Goals)
<b>Sustainability Dimensions</b>	Economic ✓✓ (cross-border asymmetry, alternative exchange models) · Social ✓✓✓ (cross-border community building, shared identity) · Cultural ✓✓ (DE/PL cultural exchange, shared Oder-Neisse heritage) · Ecological ✓ (shared bioregion, cross-border environmental cooperation)

<b>BNE Gestaltungskompetenzen</b>	4.1.1 Open to the world, new perspectives · 4.2.1 Plan and act collectively · 4.2.2 Recognize conflicting goals (EUR/PLN asymmetry, national frameworks) · 4.3.4 Justice as basis for action
<b>Dilemma / Controversy</b>	Economic asymmetry DE/PL (different wages, currencies, cost of living) · Technological trust vs. relational trust in cross-border systems · National institutional frameworks vs. community solidarity · Documentation vs. organic spontaneity in reciprocal exchange
<b>Global-Local Connection</b>	Local DE/PL border community ↔ EU cohesion policy and Interreg programs · Local cross-border reciprocity ↔ global migration and inequality frameworks · Shared bioregion ↔ international transboundary ecosystem management
<b>Facilitator Qualification</b>	Bilingual DE/PL essential (co-facilitation team strongly recommended); cross-cultural facilitation experience; knowledge of EU cross-border policy context; cultural sensitivity to German-Polish historical complexities; comfort addressing economic asymmetry openly and directly
<b>Accessibility</b>	Bilingual (DE/PL) materials throughout; translation support built into program structure; Zones A and E accessible; full-day format includes rest provisions; all written materials available in large print
<b>Pre-Workshop Materials</b>	Bilingual invitation materials (DE/PL); Cross-Border Exchange Map worksheet downloadable for pre-completion at home; Collective Threshold Model summary in DE/PL/EN; co-facilitator coordination call recommended 1 week before
<b>Evaluation Method</b>	See Evaluation section below

## The Cross-Border Economic Context

The Oder-Neisse border is not only an ecological line (as explored in Appendix A, Guide 5) but an economic discontinuity. Wages, prices, currencies, regulations, and tax systems differ sharply between Brandenburg and Lubuskie. German residents cross to Poland for cheaper fuel and dental care; Polish residents cross to Germany for work. This cross-border flow is transactional — it follows price differentials.

But beneath the transactional layer, an older reciprocal economy persists. Cross-border families share childcare. Cross-border friends exchange garden produce. Cross-border tradespeople barter skills. Polish harvest workers and German farmers have a decades-old relationship that is formally transactional (wage labor) but informally reciprocal (accommodation, meals, the yearly return, the relationship itself).

The workshop makes this dual economy visible and asks: what would a formally recognized cross-border reciprocal economy look like? What would change if the tokens earned by a Polish volunteer at Erdpuls were recognized by a partner initiative in Rzepin, and vice versa?

*Proxemic framing:* The border is a proxemic barrier. On the German side, a resident can walk up to a neighbor, stand at personal distance, and negotiate an exchange in their own language — all sensory channels active, all social codes familiar. Cross the border, and the same action requires social or public distance: a formal arrangement, a translation, an institutional mediation. The cross-border token economy is, in proxemic terms, an attempt to create personal-distance economic relationships across a public-distance political boundary. The workshop itself — by bringing people into physical proximity, shared meals, shared tasks — is the proxemic infrastructure that makes this possible.

## Preparation and Materials

- Bilingual token cards (DE/PL on each card, with EN as bridge language)
- Large-format cross-border map (as in Appendix A, Guide 5)
- "Cross-Border Exchange Map" worksheets — like the Exchange Mapping from Guide 2, but with two zones: "My exchanges on the German side" and "My exchanges on the Polish side"
- Examples of existing cross-border exchange (prepared in advance from local knowledge — anonymized anecdotes of cross-border mutual aid)
- Currency display: a 5 EUR note and a 20 PLN note side by side — "These have a market exchange rate. What is the exchange rate of a grandmother's recipe for a neighbor's help with paperwork?"
- Shared meal ingredients from both sides of the border
- Co-facilitation team (one German-speaking, one Polish-speaking facilitator)

## Welcome and Framing (20 minutes)

Both facilitators present. Welcome in DE, PL, and EN.

Begin with the currency display:

"Five euros. Twenty złoty. The market says they're worth about the same. But here's a harder question: your Polish neighbor taught your German child to make pierogi. Your German neighbor drove your Polish mother to the hospital in Frankfurt (Oder). What is the exchange rate between pierogi-making knowledge and a 40-kilometer emergency ride? The market has no answer. But everyone in this room knows these exchanges happened — and they mattered more than anything you could buy with five euros."

"Today we explore the economy that doesn't stop at the border — the economy of cooperation, reciprocity, mutualism, and regeneration. We call it a reciprocal token economy. Its principles are ancient. Its visibility mechanism is new. And it might be the most natural thing in the world for a border community."

## The Experience: Phase 1 — Cross-Border Exchange Mapping (35 minutes)

Each participant completes a Cross-Border Exchange Map:

**On the German side:** Who did you exchange with, what flowed, which token element? **On the Polish side:** Same. **Across the border:** Were any of your exchanges cross-border? If so, what was exchanged, and was money involved?

Allow 20 minutes for individual work. Then form cross-national pairs: one German participant with one Polish participant. Share maps. 15 minutes.

**The discovery:** Most participants will have few or no cross-border entries. The border is a reciprocity barrier — people exchange intensely within their national community but rarely across. The transactional economy crosses the border (shopping, work), but the reciprocal economy stops at it.

Group debrief: "Why? You live 30 km from each other. You share a river, a landscape, a climate, a glacial history. But your exchange maps don't cross the border. What stands in the way?" (Language, bureaucracy, unfamiliarity, habit, historical mistrust — let the group name them.)

"Now: what would change if you had a structure that recognized and recorded cross-border exchanges? Not money — recognition. A visible record that says: this German and this Pole cooperated on something, and both communities benefited."

## The Experience: Phase 2 — The Four Elements in Border Context (30 minutes)

Introduce the four elements with cross-border examples:

**Cooperation:** A German and a Polish volunteer repair a bicycle together at the Erdpuls Repair Café. Neither could have done it alone — the German knows the frame, the Pole knows the gear mechanism. Together, the bike works. Both receive a Cooperation token.

**Reciprocity:** A Polish grandmother teaches a German schoolchild to identify wild herbs along the Schlaube. The schoolchild teaches the grandmother to upload her observations to iNaturalist. Both gain what they lacked. Both receive a Reciprocity token.

**Mutualism:** An Erdpuls workshop produces a trilingual field guide to the plants of the Oder-Neisse borderland. Participants from both countries contributed observations. The guide is published as OER. Anyone — German, Polish, visiting — can use it. Every contributor receives a Mutualism token.

**Regeneration:** A cross-border group clears invasive species from a section of the Schlaube river valley. The ecological benefit crosses no border — the river doesn't care which country its banks are in. Every participant receives a Regeneration token.

**Exercise:** In cross-national small groups (3–4 people), design one cross-border activity that would generate all four token elements simultaneously. Write it on a large card. Present to the group.

---

These designs often produce strikingly creative proposals: a cross-border seed exchange (German and Polish heirloom varieties, shared growing, shared harvest — all four elements); a bilingual sensor network (German-side and Polish-side sensors feeding the same dashboard — all four elements); a cross-border elder interview project (memories from both sides of a shared landscape — all four elements).

### **Shared Meal (45 minutes)**

As in Appendix A, Guide 5: food from both sides, prepared together if possible. During the meal, informal conversation — the most productive cross-border relationship-building happens here.

*Proxemic note — the proxemic center of the cross-border day:* The shared meal is the moment where the workshop's proxemic and economic principles converge. Food from both sides of the border, shared at personal-to-intimate distance, activates all five sensory channels simultaneously: taste, smell, thermal warmth, touch of bread being passed, sound of multilingual conversation. The meal itself generates token value across all four elements — Cooperation (prepared together), Reciprocity (each side brings what the other lacks), Mutualism (shared experience strengthens community cohesion), and it models what the designed cross-border economy would feel like in practice. This is not metaphorical: the meal is the reciprocal economy, operating at intimate proxemic distance, across a cultural boundary, without requiring any formal system to record it. The token economy's role is simply to ensure that the next meal, and the exchange it enables, also happens.

The meal itself generates Cooperation tokens (prepared together), Reciprocity tokens (each side brings something the other doesn't have), and Mutualism tokens (the shared experience benefits the broader community's cohesion).

### **The Experience: Phase 3 — Designing a Cross-Border Token Economy (60 minutes)**

This is the ambitious, generative phase. The group collectively designs the basic parameters of a cross-border reciprocal economy linking Erdpuls with a partner site (real or hypothetical) in Lubuskie.

#### **Working questions (in rotating small groups, 15 min each):**

*Group A: Activities and Elements.* "What activities would our cross-border economy recognize? Map at least 10 activities to the four elements."

*Group B: Pathways and Access.* "How would the Collective Threshold Model work across the border? A Polish participant wants to attend a German-side workshop — what pathways are open? How does a German participant access a Polish-side event?"

*Group C: Technology and Trust.* "What implementation level is appropriate? Paper tokens? Spreadsheet? Blockchain? What are the trust implications of each? What happens if the German system uses one technology and the Polish system uses another?"

---

*Group D: Currency and Commensurability.* "Can a token earned on the German side be 'spent' on the Polish side? What makes this possible or problematic? Is a Cooperation token worth the same in both communities, or does it need conversion?"

Groups rotate through all four questions (15 min each). Then a 15-minute plenary synthesizes findings.

The synthesis typically reveals a central insight: the greatest barrier to a cross-border token economy is not technical (Stellar works the same everywhere) or economic (the four elements are culturally universal) — it is relational. Cross-border reciprocity requires *knowing each other*. The workshop itself, by bringing people together across the border to discuss economic principles through shared activities, is the first step. The token economy can record the exchange, but the exchange must happen first.

## Closing (20 minutes)

Return to the cross-border map. Each pair that completed an exchange during the workshop marks it on the map — location of the activity, token elements generated, languages used.

"Look at the map. This morning, most of your exchanges stopped at the border. This afternoon, the map shows exchanges crossing it. The economy crossed the border because you crossed the border — not with euros and złoty, but with skills, stories, food, and ideas. The token economy is simply the record that says: this crossing happened, and it mattered."

Each participant takes home: - Their Cross-Border Exchange Map - 2–3 completed token cards from the day's activities - A bilingual summary of the Collective Threshold Model - Contact information for cross-border partners identified during the workshop

## Facilitator Notes

**The currency question is genuinely complex.** The EUR/PLN exchange rate means a "Full Rate" fee has different real costs on each side of the border. The Collective Threshold Model addresses this through the Supported Rate and Skills Exchange pathways, but facilitators should be transparent about the economic asymmetry and avoid implying that the token economy erases material inequality. It doesn't — it recognizes forms of value that material wealth alone cannot measure.

**The political dimension:** Cross-border economic cooperation has political implications in the EU context — freedom of movement, cohesion funding, neighborhood programs. Facilitators should be aware of these frameworks but should position the token economy as a community-level complement, not a substitute for or resistance to EU policy.

**Language as economic barrier:** Translation is itself a high-value economic act. Bilingual participants who translate during the workshop are performing Mutualism (enabling exchanges that couldn't otherwise happen) and Cooperation (the workshop cannot function without them). Recognize this explicitly with tokens.

## Evaluation

*Fulfils BNE criterion 5.2.1 (documented reflection) and 5.2.2 for recurring cross-border events.*

**Primary artifact:** The completed Cross-Border Exchange Maps (before and after the workshop) are the primary evaluation documents. Count cross-border entries at start vs. end of day — this quantifies the proxemic shift the workshop achieves.

**End-of-day feedback (bilingual, 10 minutes):** Brief written card (DE on one side, PL on the other): - "One exchange I made today that crossed the border: \_\_" - "**One barrier to cross-border exchange I now understand differently:** \_\_" - "A cross-border exchange I intend to make in the next month: \_\_\_\_"

**Facilitator record:** Number of cross-border pairs formed during Phase 1; cross-border token cards generated; proposals from Phase 3 design exercise; cross-border contacts exchanged during the shared meal.

**Longitudinal indicator (3-month follow-up email, bilingual):** Are cross-border contacts from the workshop maintained? Have any Phase 3 proposals been attempted? This follow-up is the most important long-term outcome measure for Guide 5.

## Proxemic Design Notes

**The Cross-Border Exchange Map reveals the proxemic border.** When participants complete their maps and discover that most reciprocal exchanges stop at the national boundary, they are seeing a proxemic phenomenon: the border converts personal-distance relationships (neighbor, friend, colleague — all at close range, all sensory channels active) into social/public-distance interactions (formal, mediated, language-barriered). The transactional economy crosses the border because transactions don't require proxemic closeness — they operate at public distance through price signals. The reciprocal economy stops at the border because reciprocity *requires* proxemic closeness — you must know the person, see their face, share their space.

**Translation as proxemic bridge:** When a Polish participant describes an exchange in Polish and a German participant translates, the translation act is a proxemic crossing: a movement from the private linguistic space of one language into the shared space of another. The vocal proxemic channel expands to include all participants. Bilingual facilitators and participants are performing the most essential proxemic labor of the cross-border workshop — they are literally bridging the sensory gap that the border creates. This labor should be explicitly recognized with tokens.

**The design phase (Phase 3) requires sociopetal arrangement.** The rotating small groups should work around shared tables with the materials at the center — not in rows facing a projection. The physical arrangement of cross-national pairs leaning over the same table, reaching for the same markers, drawing on the same sheet is the proxemic enactment of the cross-border economy they are designing. If participants are seated in culturally homogeneous clusters facing a screen, the design exercise will produce theoretical proposals rather than felt commitments.

---

**The closing map as collective proxemic synthesis.** The cross-border map where pairs mark their exchanges should be large enough and low enough that all participants can lean over it simultaneously — German and Polish participants standing side by side, shoulders touching, marking points on both sides of the drawn border. This physical proximity around a shared representation of the shared landscape is the workshop's final proxemic image: the border was crossed not with euros and złoty, but with bodies standing close enough to share a map.

---

## Cross-Guide Reference: How the Five Guides Compose

---

The five token economy guides, like the soil guides, form a system that deepens across the annual cycle:

- **Spring:** Adults and Families (Guide 2) map their existing exchanges at a Repair Café / Open Makerspace Day. The token system launches for the community season.
- **Early Summer:** Children (Guide 1) play the Garden Economy Game during a school visit. They understand the principles through play and carry their first tokens.
- **Midsummer:** Artists and Researchers (Guide 4) engage the deepest critical dialogue during their residency. Their work models alternative value for a wider audience.
- **Autumn:** Cross-Border groups (Guide 5) extend the token economy across the national boundary at the harvest festival or a bilateral exchange event.
- **Winter:** Elders and Intergenerational groups (Guide 3) stage the Memory Market, ensuring that the knowledge economy of the oldest generation is recognized before it is lost.
- **Year-End:** The Memory Market Ledger, the Value Flow Maps, the Residency Token Records, the Cross-Border Exchange Maps, and the children's game cards are compiled. The community sees, for the first time, the full scope of its reciprocal economy — and recognizes that it was rich all along.

**The proxemic dimension of the annual cycle:** Every entry in the year-end compilation represents an exchange that happened at personal or intimate proxemic distance — face to face, hand to hand, side by side. The Memory Market Ledger records conversations at Kaffeeklatsch distance. The Repair Token Trackers record diagnoses at intimate distance over a shared workbench. The Cross-Border Exchange Maps record exchanges that crossed a proxemic barrier as well as a political one. The Value Flow Maps record children's first experience of what an economy feels like when participants face each other instead of a counter. The compilation, taken as a whole, is a portrait of a community's proxemic economic life — the economy that happens at close range, through multiple senses, between people who can see each other's faces. It is the economy that no GDP measurement captures, and that the token system makes visible for the first time.

---

## License and Attribution

---

© 2025–2026 Michel Garand | Erdpuls Müllrose — Center for Sustainability Literacy, Citizen Science & Reciprocal Economics Müllrose, Brandenburg, Germany

Licensed under [Creative Commons Attribution-ShareAlike 4.0 International \(CC BY-SA 4.0\)](#)

You are free to share and adapt this material for any purpose, including commercially, provided you give appropriate credit, provide a link to the license, indicate if changes were made, and distribute any adaptations under the same license.

All software components referenced in this document are licensed under the [GNU Affero General Public License v3.0 \(AGPL-3.0\)](#)

*This document and its translations were developed with assistance from Claude (Anthropic PBC). All strategic decisions, philosophical positions, and project commitments are those of the author.*

**Contact:** erdpuls@ubec.network · <https://erdpuls.ubec.network>

*Alle Dokumente und ihre Übersetzungen / All documents and their translations. Müllrose, Brandenburg — February 2026*