



El Colegio de la Frontera Sur

Explorando los valores relacionales en agroecosistemas a
través de Video Participativo en la comunidad de Loma
Bonita, Chiapas

TESIS

presentada como requisito parcial para optar al grado de
Maestra en Ciencias en Recursos Naturales y Desarrollo Rural
Con orientación en Manejo y Conservación de Recursos Naturales

Por

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2023



El Colegio de la Frontera Sur

Villahermosa, Tabasco; 11 de diciembre de 2023.

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“Explorando los valores relacionales en agroecosistemas a través de Video Participativo en la comunidad de Loma Bonita, Chiapas”

para obtener el grado de **Maestra en Ciencias en Recursos Naturales y Desarrollo Rural**.

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A mi abuelita Coco

A mis padres, mis mejores maestros

Agradecimientos

Este trabajo no hubiera sido posible sin el cálido apoyo de las personas de Loma Bonita, Chiapas, gracias por su hospitalidad y confianza. En especial, gracias a Lila Jamangape, Suany Jamangape, Nelba Jamangape G., Abimael Mendoza, Pascual Jamangape R. y Miguel Romero, quienes participaron en el proceso de Video Participativo.

Agradezco a mi directora de tesis la Dra. Azahara Mesa por la confianza y valiosos aprendizajes durante mi formación, a mi comité de tesis, Dra. Patricia Balvanera y Dra. Helda Morales por sus amplias enseñanzas y retroalimentación. De igual forma, agradezco a los sinodales por sus contribuciones y tiempo dedicado a esta tesis, Dra. Paula Novo, Dr. Nicolás Roldán y Dra. Vera Camacho.

Gracias a Magda Hernández, por las revisiones y palabras de aliento. Agradezco al equipo del LaTSu y a todas aquellas personas con las que he compartido aprendizajes.

Agradezco al ECOSUR y al CONAHCYT por la beca de maestría recibida bajo el Programa de Becas Nacionales. Asimismo, agradezco la colaboración con Cocina Colaboratorio y el financiamiento a través del número de beca PAPIIT E IV200120 2020-2022, al PRONACE-CONACYT a través del número de beca F003-2022-319065 2022-2024; el proyecto 9380 del Fondo Mundial para el Medio Ambiente sobre Agrobiodiversidad Mexicana otorgado a la CONABIO.

El culminar esta tesis se debe en gran medida a todo el cariño recibido: Gracias por siempre a mi madre Mar y a mis hermanos Ita y Mario por acompañarme con tanto amor. A mis amigas por su escucha y cariño en la distancia: Angy, Aremi, Angy A, y Andrea. A mi padre Mario por su apoyo crucial en esta importante etapa. A Mariela por siempre estar. A Fina y Hermelindo por su incondicional respaldo y solidaridad. Finalmente, y no menos importante, agradezco a Alberto por su amorosa compañía, gracias por todo lo recorrido juntos.

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Resumen

Las relaciones de las personas con la naturaleza están siendo afectadas por varios factores; uno de ellos es la transformación de los agroecosistemas tradicionales a sistemas de producción agroindustrial. Esta transformación ha traído algunas consecuencias, entre ellas, el deterioro de los ecosistemas y la desconexión entre los individuos y el cultivo de los alimentos. El concepto de valores relacionales puede resultar útil para estudiar estos vínculos entre las personas y los agroecosistemas, los cuales, se refieren a relaciones significativas entre las personas y la naturaleza y entre otras personas. Esta tesis tuvo como objetivo explorar los valores relacionales respecto a los agroecosistemas en Loma Bonita, Chiapas, así como visibilizar las diferentes expresiones de los valores de acuerdo con las características interseccionales de las personas y las diversas interacciones con los agroecosistemas con los que interactúan. Para ello, utilizamos el video participativo en combinación con entrevistas, recorridos, visitas y pláticas informales en solares y parcelas, así como la observación participante. La información fue codificada de manera deductiva a partir de la literatura existente de valores relacionales para posteriormente modificarse acorde a la narrativa de los participantes. Las personas participantes develaron una gran diversidad de valores relacionales concernientes a vínculos de cuidado y compromiso con la naturaleza y las personas de su familia y comunidad respecto a los agroecosistemas. Estos valores son identidad cultural e individual, cohesión social, responsabilidad social y a lo no humano, custodia y autodeterminación. Las personas expresaron distintas narrativas de los valores relacionales acorde a diferencias interseccionales. Identificar los valores relacionales de un agroecosistema específico fue complejo, dado que los individuos se relacionan con varios agroecosistemas simultáneamente. Visibilizar y tomar en cuenta la diversidad de valores plurales de las comunidades locales en las fronteras agrícolas puede contribuir a lograr agroecosistemas más justos y sostenibles.

Palabras clave: Relación sociedad-naturaleza; valoración plural; métodos participativos; frontera agroforestal

Introducción

La rápida intensificación y transformación de agroecosistemas tradicionales a sistemas agroindustriales ha afectado la biodiversidad, la subsistencia de las personas y sus vínculos con la naturaleza. Esto ha resultado en agroecosistemas caracterizados por una alta dependencia de insumos externos (fertilizantes químicos y plaguicidas, semillas y maquinaria) así como por la extensión de monocultivos (por ejemplo, aceite de palma o soya) que reducen la agrobiodiversidad del territorio (Rosset 2004; Toledo 2005; Eckart Boege 2008). Entre las consecuencias ambientales documentadas están la drástica disminución de la biodiversidad, pérdida de polinizadores, contaminación de acuíferos y suelos, aumento de la erosión, y mayor vulnerabilidad a plagas (Foley et al. 2005; Hazell y Wood 2008). Ello ha derivado en un acceso desigual a los alimentos, condiciones de trabajo precarias, así como en afectaciones a la salud humana (Rosset 2004; Hazell y Wood 2008; IPES-Food 2017). Al mismo tiempo ha impactado de manera negativa en las comunidades locales que, por siglos han acumulado saberes y prácticas en estrecha relación con la naturaleza, conduciendo a un desarraigo con el entorno y al deterioro del patrimonio biocultural (Toledo 2005; Toledo y Barrera-Bassols 2008; Giraldo 2018).

Los agricultores mantienen diversos vínculos con los agroecosistemas. Estos vínculos tienen como trasfondo valores, entre otros aspectos cognitivos, que influyen en las actitudes y comportamientos respecto a la naturaleza (Jones et al. 2016; Jacobs et al. 2020). Los valores tienen un papel crucial en la conservación de la naturaleza y en las condiciones de vida de las comunidades (IPBES 2022; Chaplin-Kramer et al. 2023; Pascual et al. 2023). Además, permiten comprender las bases emocionales y profundas de las interacciones de las personas con la naturaleza (Jones et al. 2016; Abson et al. 2017; Riechers 2021). El concepto de valor puede entenderse de cuatro maneras: los principios o creencias que indican reglas y juicios morales; una preferencia por algo o por cómo se encuentra (el estado particular en el que se encuentra); la importancia de algo para sí mismo o para otras cosas y los demás; y como una medida para representar algo (UNEP/IPBES 2015; Pascual et al. 2017). En este sentido, es relevante considerar que el significado de valor puede diferir según las personas, el contexto, el sistema de conocimiento y la escala (IPBES 2022).

En la literatura se ha reportado una amplia diversidad de tipología de valores que parten desde distintos campos de estudio, tales como la psicología, las ciencias sociales (Ives y Kendal 2014), la economía y la ecología (Pascual et al. 2017), entre otros. Algunos de los valores utilizados en las investigaciones respecto a las relaciones sociedad y naturaleza son los siguientes: 1) valores eudaimónicos, que tienen que ver con nociones asociadas a lo que se considera llevar una buena vida, así como con las condiciones que conducen a tener una vida significativa y satisfactoria, por ejemplo, la emoción y el disfrute de estar en contacto con la naturaleza (Muraca 2011; Pascual et al. 2017; Arias-Arévalo et al. 2018); 2) los valores fundamentales, asociados a las condiciones necesarias para la existencia de la vida y para darle sentido, tal como la identidad y los medios de vida (Muraca 2011; Arias-Arévalo et al. 2018); 3) los valores asignados o específicos, asociados a la importancia de elementos o relaciones en contextos particulares (IPBES 2022) o determinados lugares (Seymour et al. 2010), por ejemplo, el asignarle valor a especies nativas de una selva. En esta categoría se consideran los valores instrumentales e intrínsecos; 4) los valores generales, que se refieren a los principios morales rectores en la vida de una persona, tal como la responsabilidad y la justicia, y pueden ser la base de otros valores (IPBES 2022; Pratson et al. 2023).

Si bien hay múltiples valores en la toma de decisiones respecto a la naturaleza, el enfoque dominante se ha centrado en dos tipos de valores específicos: los valores instrumentales y, ocasionalmente, los valores intrínsecos (Arias-Arévalo et al. 2017; Chan et al. 2018; IPBES 2022). Los valores instrumentales se refieren al valor que se le da a la naturaleza al considerarla un medio para lograr fines específicos para el ser humano, generalmente están basados en el mercado. Los valores intrínsecos se refieren al valor que tiene la naturaleza por su propia existencia, es decir el valor que tiene independientemente de la relevancia para los humanos (figura 1A) (Muraca 2011; Himes y Muraca 2018; IPBES 2022). No obstante, dada la diversidad y amplitud de relaciones entre el ser humano y la naturaleza, hay muchos otros valores que las personas consideran y no se han visibilizado ni incluido en el diseño y toma de decisiones (Muraca 2011; Chan et al. 2016; Arias-Arévalo et al. 2017; Himes y Muraca 2018).

En este sentido, es necesario visibilizar la diversidad de valores que incluyan la riqueza y complejidad de las relaciones de las personas con la naturaleza (Pascual et al. 2017; Pascual et al. 2023). Por ello, se han propuesto enfoques de valoración plural, que permitan incorporar las propias perspectivas de los distintos actores involucrados (Himes y Muraca 2018) y coadyuvar a que la toma de decisiones sea más justa y propicie resultados sostenibles (Jacobs et al. 2020; Zafra-Calvo et al. 2020; IPBES 2022).

En la búsqueda de incluir la pluralidad de valores de la naturaleza desde la esfera académica y organismos internacionales, tal como la Plataforma Intergubernamental Científica Normativa sobre Biodiversidad y Servicios del Ecosistema (en inglés Intergovernmental Science Policy Platform on Biodiversity and Ecosystem, IPBES) están reconociendo una multiplicidad de valores respecto a la naturaleza. La IPBES proporciona distintas evaluaciones sobre el estado, conservación y uso sostenible de la biodiversidad, los servicios ecosistémicos, el bienestar humano y el desarrollo sostenible. Desde distintas disciplinas científicas y considerando otras formas de conocimiento contribuye con información a los tomadores de decisiones y el uso de esta en las políticas públicas (IPBES 2023). Recientemente, la IPBES ha publicado una evaluación metodológica relativa a la conceptualización de los múltiples valores de la naturaleza, sus beneficios e incluye una tipología de valores. Esta evaluación proporciona herramientas, conocimientos y métodos para incorporar los diversos valores respecto a la naturaleza en la toma de decisiones hacia futuros más justos y sostenibles (IPBES 2022). Cabe resaltar que, dentro del marco conceptual de la IPBES, se incluye a los valores relacionales, ampliando el panorama dominante de los valores instrumentales e intrínsecos (UNEP/IPBES 2015; Pascual et al. 2017; Chan et al. 2018).

Los valores relacionales son definidos como “*valor de las relaciones humanas deseables, significativas y, a menudo, recíprocas con la naturaleza, las cuales suelen especificarse como un determinado paisaje, lugar, especie, etc., y entre las personas a través de la naturaleza*” (IPBES 2022: 34). El concepto incluye valores asociados a tener una buena vida y abarca nociones de responsabilidad, justicia y cuidado. En los valores relacionales, la relación en sí misma importa y es insustituible, no se puede reducir a un medio para un fin, son vínculos significativos y complejos (Chan et al. 2016; Chan et al. 2018). Por

ejemplo, algunos agricultores tienen vínculos específicos con el agroecosistema, pues este los conecta con recuerdos y experiencias o les permite crear conexiones significativas con otras personas, entonces, ese agroecosistema no puede verse como algo sustituible en sus vidas, resulta esencial para estos vínculos (Chapman y Deplazes-Zemp 2023). Además, tomar en cuenta los valores relacionales es clave para contribuir al bienestar humano y a la conservación del ambiente (IPBES 2022); estos valores resultan también útiles para conocer la percepción de las personas ante políticas y proyectos ambientales (Chapman et al. 2019; Riechers et al. 2020; Uehara et al. 2020; Baker et al. 2021). Muchas personas consideran sus vínculos con la naturaleza como parte de su identidad o cultura. Por ejemplo, algunos individuos o poblaciones conciben la naturaleza como parte de ellos mismos, sin realizar una separación entre esta y los humanos (Chan et al 2016; IPBES 2022). En este sentido, los valores relacionales resultan importantes para explorar narrativas de contextos locales e indígenas que a menudo resuenan con estos vínculos (Allen et al. 2018; Sheremata 2018; Gould et al. 2019; Bataille et al. 2021; Unks et al. 2021).

Según Chan et al (2016) los valores relacionales pueden ser colectivos e individuales (ver figura 1B). Entre los valores colectivos encontramos:

- Identidad cultural: deriva de un determinado elemento de la naturaleza o ecosistema para un grupo social, por ejemplo, el mar en el caso de una comunidad pesquera.
- Cohesión social: se refiere a que el contacto con la naturaleza conduce a establecer relaciones con otras personas, por ejemplo, a partir del interés en la observación de aves se conforman grupos o clubes para su avistamiento (se crean relaciones interpersonales).
- Responsabilidad social: alude a grupos sociales que, al preservar la naturaleza, también cuidan a los demás habitantes tanto en el presente como en el futuro. Tal es el caso de una comunidad que decide realizar campañas para limpiar las orillas de un río cercano a su localidad.
- Responsabilidad moral a lo no-humano: hace referencia a que cuidar todas las formas de vida y formas físicas es una necesidad moral, por ejemplo, cuidar del

agua para que todas las personas tengan acceso a ella (más allá del interés individual).

Entre los valores individuales están:

- Identidad individual: se refiere a cómo un lugar es importante para quien somos como personas, por ejemplo, el sentido que le da la tierra a un agricultor.
- Protección cuidado, custodia (*stewardship* en inglés) en el sentido eudaimónico: hace referencia a busca respetar y conservar la naturaleza porque genera bienestar y conduce a una buena vida. Por ejemplo, tener una composta en casa porque es una actividad que te hace sentir mejor y reduces la cantidad de desechos.
- Protección cuidado o custodia (*stewardship* en inglés) como principio o virtud: Se refiere a que cuidar la naturaleza es hacer lo correcto, por ejemplo, participar en la reforestación de un bosque.

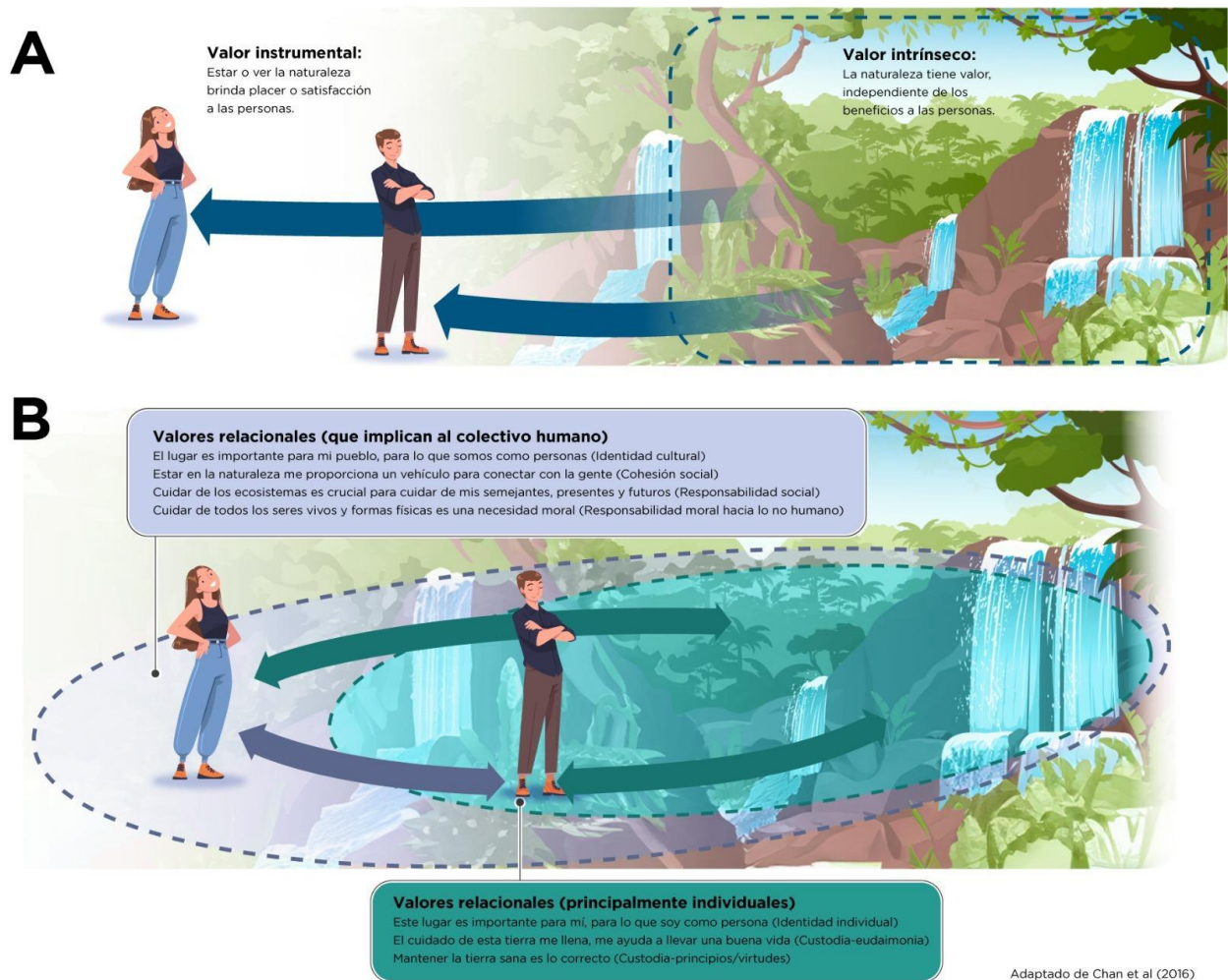


Figura 1. Diferencia entre los marcos de valor instrumental e intrínseco (A) y los valores relacionales (B) tanto colectivos como individuales. Adaptado de Chan et al (2016)

Otros valores relacionales se expresan en el sentido de pertenencia (hay un arraigo a ser parte del espacio, de la naturaleza), por ejemplo, una persona que crece cerca de determinado río y siente que es parte de su vida. En valores instrumentales ligados a elementos naturales, considerados relacionales, cuando el vínculo con la naturaleza se vuelve más que un medio para un fin, es decir existen apegos, responsabilidades, por ejemplo, recolectar hongos para alimentarse, pero preferir hacerlo en el bosque donde se creció (Arias-Arévalo et al. 2017; Chan et al. 2018). En ocasiones, los valores relacionales se solapan con otros conceptos de valor y es difícil delimitar cada tipo de valor (figura 2) (IPBES 2022). Por ejemplo, son innegables los beneficios de provisión de alimento que se obtienen de la agricultura, lo cual puede considerarse como un valor instrumental, no obstante, también es percibido como un valor relacional al atribuirle la

identidad cultural e individual que ello confiere al agricultor (la tierra es importante para quien es como persona).

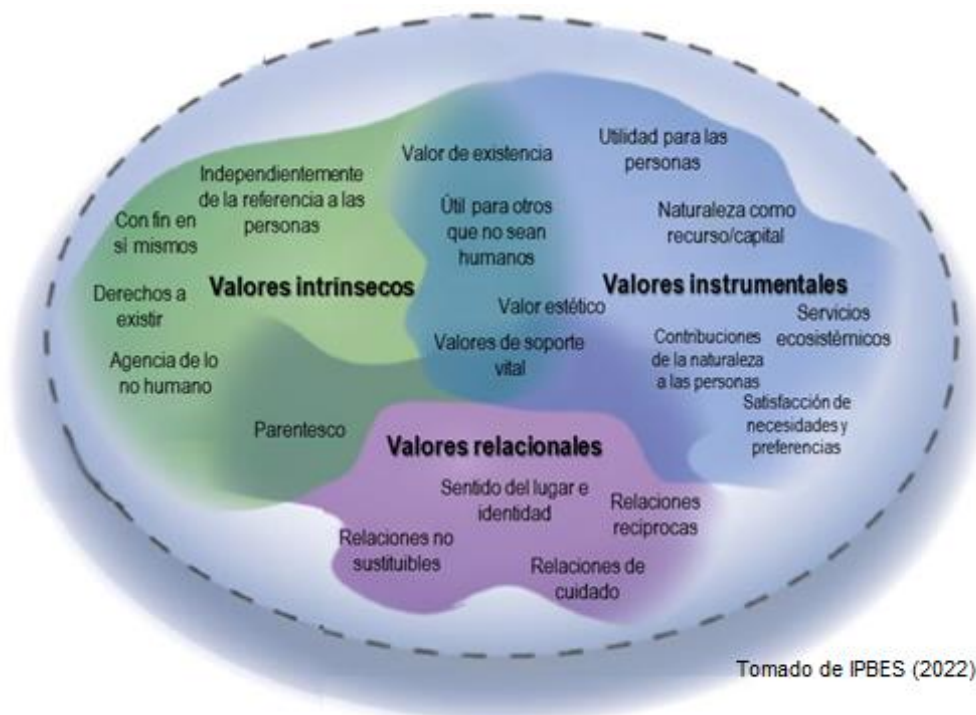


Figura 2. Límites difusos de los distintos tipos de valor. Fuente: IPBES (2022)

Dentro de las investigaciones en torno a los agroecosistemas se ha encontrado que los agricultores tienen diversos valores relacionales que se reflejan en las actitudes y comportamientos asociados a la conservación de la biodiversidad (Allen et al 2018). A la vez, se han identificado conflictos de valores entre los agricultores y los programas de conservación (Chapman 2019), y solapamientos entre valores relacionales e instrumentales, es decir, puede haber relaciones donde ambos valores coexisten simultáneamente, por lo que tomar en cuenta esta diversidad de valores puede resultar útil para mejorar el diseño de políticas y programas agrícolas (IPBES 2022). En este sentido, al considerar los valores de los agricultores se puede favorecer la participación local, lo cual es útil para fortalecer el sentido de agencia de los mismos (Chapman 2019). La agencia se refiere a las habilidades y capacidades de individuos o colectivos para actuar y decidir por ellos mismos (McLaughlin y Dietz 2008; Brown y Westaway 2011).

Además, los valores relacionales pueden variar de acuerdo con las características interseccionales de las personas, tales como el género, la ocupación y la tenencia de la tierra (Monroy-Sais et al. 2022), por lo que es importante considerar quién expresa los valores. Por otra parte, se pone de relieve que, en paisajes simplificados por la agricultura industrial, como los monocultivos, los valores relacionales se han visto erosionados, afectando los vínculos entre las personas y la naturaleza, así como las relaciones sociales (Riechers et al. 2020). La pérdida de prácticas agrícolas debido a la expansión de monocultivos conduce a una disminución de valores ligados a la conservación ambiental y afecta la vida y el bienestar de las comunidades (IPBES 2022). Por ello, conocer los valores relacionales de las personas que trabajan la tierra pueden contribuir a conocer de forma más holística las relaciones que mantienen con los agroecosistemas (Allen et al. 2018; Chapman et al. 2019).

Objetivos y preguntas de investigación

En este sentido, resulta clave explorar los valores relacionales de los agricultores al ser quienes se encargan de manera más directa de las decisiones de manejo en los agroecosistemas. La frontera agroforestal del sur de México presenta zonas de selva tropical que han sido transformadas para el establecimiento de asentamientos humanos, carreteras, áreas de cultivo, ganadería, entre otros (Kolb y Galicia 2018; Berget et al. 2021). En esa zona se encuentran agroecosistemas de tipo pastizales para ganado, áreas forestales, parcelas para monocultivos, parcelas donde se cultiva milpa, así como solares o traspatios (Berget et al. 2021; Pingarroni et al. 2022). Por ende, al tener características particulares cada agroecosistema, puede ser muy diversa la forma en que las personas se vinculan con estos. Además, tanto las decisiones individuales de manejo de los agroecosistemas como los distintos valores están fuertemente ligados a su entorno social (IPBES 2022). Es decir, los valores relacionales de los agricultores pueden variar según los contextos sociales, culturales, históricos y otras características interseccionales (IPBES 2022; Monroy-Sais et al. 2022).

En los últimos años se han hecho esfuerzos por explorar de manera empírica los valores relacionales en diversos contextos (Pratson et al. 2023). No obstante, no hay muchas

evidencias de valores descritos empíricamente respecto a los agroecosistemas especialmente en zonas tropicales. Por ello se generaron tres preguntas de investigación: ¿cuáles son los valores relacionales de los agricultores respecto a los agroecosistemas en Loma Bonita, Chiapas?, ¿cómo se expresan los valores relacionales según las características interseccionales y contextuales de las personas?, ¿cómo varía la diversidad de los valores relacionales según el tipo de agroecosistema con los que interactúan? En este sentido, se planteó como objetivo de investigación explorar los valores relacionales de los agroecosistemas en Loma Bonita, Chiapas, así como indagar las diferentes expresiones de los valores de acuerdo con las características interseccionales de las personas, y según el tipo de agroecosistema con el que interactúan. Esta tesis contribuye con una tipología de valores contextualizados y ejemplos empíricos de valores relacionales respecto a los agroecosistemas, donde se incluye la heterogeneidad de los participantes (género, edad, ocupación o tenencia de la tierra, entre otros).

El ejido Loma Bonita, perteneciente al municipio de Ocosingo del estado de Chiapas, México, se ubica en el sureste de la Selva Lacandona, específicamente en la región de Marqués de Comillas. Es una región altamente biodiversa y contigua a la Reserva de la Biosfera Montes Azules (INEGI 2000). A raíz del reparto de tierras en la década de 1970-1980, la región ha sido continuamente transformada, aunado a otros procesos sociales y políticos como programas de desarrollo y políticas gubernamentales (Carabias et al. 2015). Estos cambios han resultado en una alta deforestación de la selva para el establecimiento de comunidades, cultivos y ganadería (Carabias et al. 2015; Berget et al. 2021). Algunos agroecosistemas identificados en Loma Bonita son solares, parcelas y potreros (figura 3) (Berget et al. 2021; Pingarroni et al. 2022). Los solares son espacios alrededor de la vivienda donde se siembran flores, plantas, árboles y se crían animales (Mariaca 2012). Las parcelas son espacios donde se cultiva una o más especies, por ejemplo, maíz, frijol, calabaza y plantas arvenses. Los potreros son áreas con pastos para el ganado y árboles dispersos.



Figura 3. Tres tipos de agroecosistemas: solar, parcela donde siembran milpa y parcela con potrero en Loma Bonita, Chiapas. Fotografía: Savilu Fuente

Para explorar los valores relacionales, se optó por el uso de herramientas artísticas y otras herramientas cualitativas, tales como entrevistas, observación participante, recorridos en parcelas y pláticas informales. La investigación basada en artes tiene el potencial de conectar con las emociones y experiencias de las personas respecto a la naturaleza (Muhr 2020), además, los enfoques creativos y el uso de técnicas no verbales resultan útiles para develar múltiples valores (Gould 2023). El método artístico elegido fue el Video Participativo (VP), que consiste en un conjunto de técnicas para involucrar a un determinado grupo o comunidad para dar forma y crear sus propios videos (Lunch y Lunch 2006). El VP resulta de especial interés al permitir la inclusión de las perspectivas de los actores involucrados (Snyder et al. 2019) y al ser un proceso que promueve la reflexión individual o colectiva (Morales et al. 2021).

La investigación se llevó a cabo en el marco del proyecto Cocina Colaboratorio, el cual, desde un enfoque transdisciplinario, busca la co-construcción de sistemas agroalimentarios más justos, sustentables y resilientes, y donde, alrededor de la mesa de cocina, se reúnen diversos actores (personas que se dedican a la producción de alimentos, a la academia, a la preparación de alimentos en la cocina, a prácticas creativas y a la profesión de chef) y se toman en cuenta los distintos tipos de conocimientos (científico, local, artístico), así como las diversas visiones, prácticas y necesidades de los actores locales en tres comunidades locales: Santo Domingo Tomaltepec (Oaxaca), Xochimilco (Ciudad de México) y Loma Bonita (Chiapas) (Kooi y Martínez-Balvanera 2021; Cocina Colaboratorio 2021; Balvanera et al. [en prensa]).

A continuación presento el desarrollo de la investigación y los resultados obtenidos, los cuales han sido inmersos en el artículo enviado a la revista Agriculture and Human Values (Capítulo 2). Más adelante, en el tercer capítulo, presento las conclusiones ampliadas y los aportes principales de la investigación.

Unveiling relational values in agroecosystems through participatory video in a tropical agroforest frontier

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Abstract

Relational values, emphasizing reciprocity, care, and responsibility, are key to motivating emotions and behaviors that enhance the sustainability of the food systems. These relational values, influenced by intersectional characteristics, individual experiences with nature, and sociocultural contexts, are especially critical for transforming less sustainable systems, such as simplified agroecosystems. This study employs a creative Participatory Video (PV) process within a long-term transdisciplinary project to reveal the diversity of relational values. The study was undertaken with inhabitants of a tropical agroforestry frontier of southeastern Mexico. We found a great diversity of relational values of agroecosystems, such as *individual and cultural identity, social cohesion, social responsibility, moral responsibility to non-humans, stewardship and self-determination*; the latter has not yet been well studied in the literature. Showing how relational values shape the daily lives of the people of Loma Bonita was made possible through the participatory video process. We illustrate how these relational values are expressed through differing narratives depending on the intersectional characteristics of the people who hold them. However, identifying relational values of a particular agroecosystem was complex, as individuals engage to varying degrees with several types simultaneously so that values could be intertwined. Making visible the relational values of those who manage agroecosystems through participatory artistic practices can change the visions of what

type of management is sustainable, and thus activate deep leverage points for transforming food systems towards more just and sustainable futures.

Keywords

Art-based methods, transdisciplinary, value pluralism, Global South, intersectionality

1. Introduction

People relate to nature differently depending on their biophysical and social context, according to their knowledge, emotions, experiences, and interpretations of their reality, which determines their actions and relationship with nature (Tauro et al. 2018; IPBES 2022). Despite the diversity of nature's values embedded in these relationships, decision-making tends to focus on specific instrumental (related to people's needs) and, occasionally, some intrinsic values (related to the inherent value of nature) (Arias-Arévalo et al. 2017; Chan et al. 2018; Sheremata 2018; IPBES 2022). More pluralistic approaches to valuation that make this diversity of values visible allow for more equitable and sustainable decision-making (Jacobs et al. 2020; Zafra-Calvo et al. 2020; Pascual et al. 2023). In this regard, Chan et al. (2016) coined the term 'relational values' as a 'third class' of values that provides a distinct perspective for framing the values associated with nature. This concept is considered to coexist with more established value categories, such as instrumental and intrinsic values. Relational values have three core features: a) they are not exclusively instrumental, b) they are derived from or about relationships, and c) the natural entities contributing to relational values are non-substitutable (Chan et al. 2016; Himes and Muraca 2018; Pratson et al. 2023; Gould et al. 2024).

Relational values are crucial for more just and sustainable decision-making (IPBES 2022). The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Value Assessment relational values are defined exactly as the "values of desirable, meaningful, and often reciprocal human relationships with nature, which are often specified as a particular landscape, place, species, etc., and among people through nature. In principle, non-substitutable" (IPBES 2022, chap. 2:34). These relationships are deep, complex, and are based on notions of responsibility, ethics, and care that lead to a good life (Chan et al. 2016; Himes and Muraca 2018). Relational values are people-

specific as they are deeply rooted in intersectional characteristics, such as gender, age, occupation, or land tenure; in individual experiences with nature, proximity to spaces, social relationships, and sociocultural contexts (Kenter et al. 2015; Chan et al. 2016; Tengö et al. 2017; Monroy-Sais et al. 2022; Pascual et al. 2023).

Relational values are key to the transformation towards sustainability, especially for the case of food systems, as they are linked with management decisions that promote biodiversity conservation in agroecosystems (Allen et al. 2018; Riechers et al. 2021). Farmers' relational values are closely related to the sense of social responsibility and care for others, contributing to the well-being of future generations (Allen et al. 2018). Also, they can help to strengthen the capacity of agency, i.e., the ability to make decisions and influence actions in agroecosystems that allow for more sustainable paths (Chapman et al. 2019; Riechers et al. 2020). In this sense, un hiding and considering relational values allows for co-designing conservation and local management mechanisms and achieving more equitable and inclusive outcomes for local communities (Chapman et al. 2019; IPBES 2022).

Exploring relational values is particularly important in agricultural frontiers, where large tracts in the planet's tropical areas face alarming deforestation (Tilman et al. 2017; Kolb and Galicia 2018; Pendrill et al. 2022). Highly-diverse ecosystems are being rapidly transformed into extensive livestock farming systems or monocultures such as palm oil or soybeans (Kassa et al. 2017; Oakley and Bicknell 2022; Suarez and Gwozdz 2023). Nature is increasingly viewed as a mere supplier for market demands, diminishing the rich tapestry of interactions between humanity and the environment (Riechers et al. 2020). When both biological and value diversity are lost, feedback processes that exacerbate deterioration can occur (IPBES 2019; IPBES 2022).

The relational values held by local actors, such as smallholders in rural areas, are particularly relevant given that these stakeholders contribute to a significant proportion of the planet's food production and are also the stewards of the world's biodiversity (Díaz et al. 2019). Through their direct engagement with the land, they play a critical role in sustaining the livelihoods of local communities and in the preservation and nurturing of

agrobiodiversity (Kull et al. 2013; FAO 2018; Ricciardi et al. 2018). However, since relational values are an emerging concept, the literature on these values and agroecosystems is scarce. Nevertheless, as relational values are an emerging concept, there is limited literature on these values in the context of agroecosystems. Therefore, it is crucial to recognise these key actors' relational values in managing their agroecosystems. They stand on the frontline of vulnerability to biodiversity loss and the erosion of their biocultural heritage (Gliessman 1992; Altieri and Nicholls 2004; Toledo 2005; Toledo and Barrera-Bassols 2008; Sarandón et al. 2016). This understanding is key to fostering and reinforcing sustainable relationships and practices. It involves weighing diverse values and perspectives, encouraging active participation and giving individuals a platform to be heard. This inclusivity can empower communities, spark inspiration, and drive transformative change (Horlings 2015; Kenter et al. 2015; Tengö et al. 2017).

The typology of relational values proposed by Chan et al. (2018) could be helpful as a starting point to explore the relationships between people and agroecosystems. In the literature on relational values, there are variations to existing typologies (Riechers et al. 2021; Saito et al. 2021), typologies according to the study (Sheremata 2018; Kreitzman et al. 2022) or specific conceptual proposals (Chapman et al. 2019). However, more empirical evidence is needed to understand the framework better and illustrate typologies on the ground, including the context-specific nuances of value holders (Pascual et al. 2023; Pratson et al. 2023).

Through an art-based participatory process, this study aims to reveal the diversity of relational values, the different expressions of values depending on intersectional and contextual characteristics, and how this diversity varies across agroecosystems. In our research, we facilitate a Participatory Video (PV) process to explore these values and experiences of local inhabitants. This research allowed us to obtain an empirical, unique typology of relational values enriched with people's narratives derived from their personal and context-specific experiences related to their agroecosystems. Our case study is located in Loma Bonita ejido, within the Selva Lacandona region in Chiapas, one of southern Mexico's most critical agroforest frontiers. This region has high biodiversity and

is rapidly changing due to the increase in monocultures and the creation of new population centers through recent colonization processes (Carabias et al. 2015; Berget et al. 2021).

This study is part of a long-running transdisciplinary project, *Cocina CoLaboratorio* [CoLaboratory Kitchen in Spanish], which aims to redirect food systems towards more just and sustainable routes. Collectives of local actors, participatory artists and designers, academics, and students come together around the kitchen, the farming plot, and the territory to exchange knowledge and experiment (<https://colaboratorykitchen.com>). The fundamental premise is that encounters in these spaces and participatory artistic practices allow for more meaningful exchanges, engaging emotions and experiences and strengthening their participants' individual and collective agency (Kooi and Martínez-Balvanera 2021). Furthermore, creativity and non-verbal techniques, such as participatory videos or photos, make it possible to showcase the diversity of values and realities and influence decision-making processes towards more sustainable paths (Muhr 2020; Tauro et al. 2021; Gould 2023). Being embedded in a transdisciplinary project, the relationships of trust and previous knowledge of the participants benefit the motivations to get involved in the participatory process. At the same time, unveiling relational values can offer crucial insights into intricate, multi-faceted problems and lay the groundwork for transdisciplinary collaborations (Sheremata 2018).

In this paper, first, we briefly overview the PV method and its usefulness in supporting a more inclusive and engaging transdisciplinary research process. We present our case study and describe the process we facilitated for the PV. Subsequently, we present our results and deductive analysis to answer the following questions: What relational values do the people of Loma Bonita unveil through PV? How do these values vary according to the intersectional characteristics of the people and across the agroecosystems they interact with? Then, our discussion explores the implications of the research at different scales. At the local scale, we discuss the possibilities that unveiling relational values and conducting a participatory process can open for the Loma Bonita community's everyday life in the short and the long term. At the global scale, we discuss the importance of considering the context-specific local actors' relational values and incorporating them into decision-making as an essential step for the overall sustainability transformation. At the

same time, it provides empirical evidence to illustrate this growing literature of relational values in sustainability sciences and, lastly, the contribution of PV as an art-based participatory method to a long-term transdisciplinary process of food system transformation. Finally, we discuss how addressing the relational values of local managers of the agroforest frontiers can activate a deep leverage point that shifts the dominant paradigms about the links between agriculture, biodiversity and livelihoods to open up more relational, reciprocal and responsible relationships that can lead towards more just and sustainable food systems.

1.1 Participatory Video: a creative tool that enables the democratic expression of voice diversity and values

The Participatory Video (PV) process consists of a set of techniques that engage a given group or community in the shape and creation of their videos to communicate their visions, interests and concerns (Lunch and Lunch 2006). Participatory Video gives local and marginalized groups a voice and contributes to political and social transformation (if applied with a critical and conscious intention) (Roberts and Lunch 2015). It is a tool that encourages including local perspectives where participants can express their narrative and how they wish to be seen and heard (Snyder et al. 2019). PV aims to promote a participatory, democratic process in which participants author and direct the development of the film (Lunch and Lunch 2006). It also promotes collective and individual community reflection on their goals, priorities, or traditions (Berardi et al. 2014; Morales et al. 2021). Furthermore, this tool can help to reveal messages and nuances that would otherwise have gone unnoticed as they used more than words to express their emotions, thoughts, and experiences (Muhr 2020). However, several researchers contest these assumptions, questioning its potential to disrupt power hierarchies during the research process or to solve practice tensions inherent to the methodology related to funding, timeframe, technical requirements and clashing researchers and communities' expectations, and several ethics concerns, among others (Chalfen et al. 2010; Milne 2016; Mistry et al. 2016; Shaw 2016; Walsh 2016).

PV can be a valuable tool to explore values as it can bring behaviors, feelings or actions that may be silenced to the surface by playing and acting with the camera. How an

individual or a group chooses to narrate their story—determining the details to share or omit, the aspects to highlight or downplay, and the method of presentation—offers significant insight into their self-perception and prompts dialogue among community members (Berardi et al. 2014). The PV can be combined with other tools to understand better the relational values using multiple data types. For example, it can be used with interviews or other qualitative data such as observations, reflections and discussions in participant dynamics (Muhr 2020; Eastwood et al. 2023). Visual arts and storytelling can inspire individuals to introspect and deeply relate to their daily surroundings and actions (Turner et al. 2023). This is crucial in bridging the gap between humans and nature, a gap that some fields (often rooted in Western scientific ecological, environmental, and conservation perspectives) still reinforce and thus exacerbate (Strand et al. 2022).

2. Methods

2.1 Case study

The *ejido* of Loma Bonita, adjacent to the Montes Azules Biosphere Reserve, still hosts enormous biodiversity (INEGI 2020). Since the 1970s, government programmes have encouraged the migration of groups from different parts of the country and Guatemala (Carabias et al. 2015; Berget et al. 2021), the conversion of forest areas to agriculture and cattle ranching, and the establishment of monocultures (Castellanos 2014; Carabias et al. 2015; Pingarroni et al. 2022). Land tenure is the *ejido*, a semi-communal property granted mainly to men, created by the Mexican state following the Mexican Revolution (PA 2014). From the 1940s and especially the 1970s (Balvanera et al. 2021) the first settlers in the community came from the North of Chiapas. Their livelihoods had not been linked to tropical rainforests previously. In 1982, as a result of the civil war in Guatemala, Guatemalan refugees also settled in the community. In 2005, Loma Bonita was officially recognised as an *ejido*, which allowed farmers to have access to some government programmes but not to conservation programmes such as Payment for Environmental Services as the remnant primary rainforest is very fragmented (Berget et al. 2021).

Loma Bonita has around 300 inhabitants (INEGI 2020), of which 80 are *ejidatarios* (RAN 2006). Not everyone in the community has property rights; only the *ejidatarios* can be part of the assembly and vote for community issues. Traditionally, mostly men have access to

land. The rest of the inhabitants (no land property rights holders) have access to land for cultivation by renting or borrowing from their relatives. The primary land use of about 1,700 hectares (RAN 2006) is cattle pasture, followed by primary and secondary forests and agriculture (Haperen 2019; Berget et al. 2021) (Figure 1). The level of marginalization of the ejido is high, and the level of social lag is medium (SEDESOL 2015). Livestock and subsistence agriculture are the main economic activities (Berget et al. 2021).

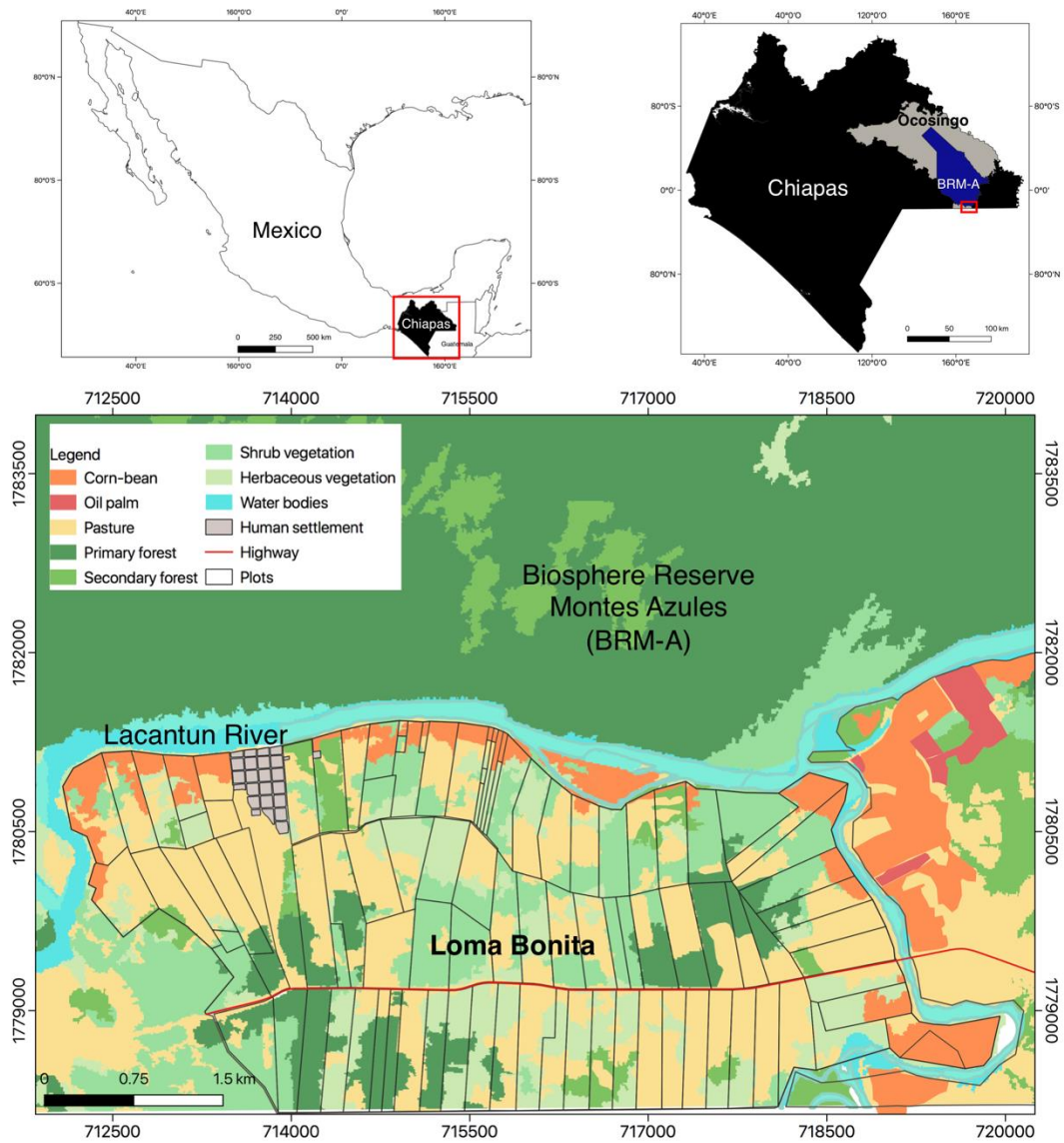


Figure 1. Location of Loma Bonita and the distribution of plots and main land uses. Source: Elaborated by Aline Pingarroni from Pingarroni et al. (2022).

The principal agroecosystems in the ejido are homegardens (called *solar* in this region), plots (*parcelas*), and pastures (*potreros*). Home gardens are the space around the house where families, mainly women, cultivate flowers, medicinal plants, fruit trees and other edible plants, and breeding animals such as pigs and chickens (Bee 2014; Cano-Contreras 2015; Trevilla-Espinal et al. 2021). The size, spatial organisation and crops vary according to the objectives of the families who live there, the land acquired, and the environmental conditions (Mariaca 2012). The average size of these spaces in Loma Bonita is 25x25 meters. Homegardens play an important role in the experimentation and conservation of domesticated and wild seeds. They are considered biodiverse agroecosystems of ancient origin (González-Jácome 2007; Cano-Contreras 2015). The food produced is usually for the family's self-consumption, gifts to neighbours or family, and a small proportion for local or regional sales (Mariaca 2012). The plots are spaces dedicated to planting. Most plots are configured as a polyculture system, called *milpa*, based on maize, beans, squash, chilli and several species of weeds. Other crops include cacao, coffee, rice, fruit trees and timber trees such as mahogany or cedar (Zermeño-Hernández et al. 2016). Plots in Loma Bonita are usually 20 hectares in size and located on the outskirts of the settlement area. Plots with *milpa* tend to be on the banks of the Lacantun River, where the soil is most fertile. Also, in Loma Bonita, there are plots with pastures for livestock (paddocks), scattered trees and, in some cases, fragments of rainforest area. Extensive cattle ranching is practised (Berget et al. 2021); cattle are essential for the economic livelihood of some families and function as a savings system (Pingarroni et al. 2022). The men are mainly in charge of managing the plots and pastures.

2.2 The Participatory Video Process

We facilitated a PV process with nine inhabitants from the Loma Bonita Ejido community from April 2021 to March 2022. In this research, the VP process was adapted from Lunch and Lunch (2006) to the needs of the participants, time restrictions, funding, and limitations imposed by the SARS-COVID-19 pandemic. Before the fieldwork phase, the first author of this work received training as a participatory video facilitator. The PV process was split into four stages with different involvement levels, number of participants

and multiple types of data co-constructed during the development of the research (Figure 2).



Figure 2. Participatory Video Process in Loma Bonita, and the co-produced multiple data types

Initial touchpoint

The initial touchpoint occurred during the *Cocina Colaboratorio* fieldwork season in April 2021. This project has been collaborating with the residents of Loma Bonita since 2018, carrying out a wide range of activities and processes through arenas of exchange and experimentation around an agroecological communal plot, a living biocultural archive and the kitchen, which is the central arena of this transdisciplinary project (Kooi and Martínez-Balvanera 2021). The kitchen is one of the most basic human spaces for exchange and daily experimentation. At the same time, it is connected to the agrosystems through the natural ingredients produced there.

The first author was able to guide the participatory video process in collaboration with community members through the trust and networking that *Cocina Colaboratorio* had built up over the years and its involvement in planned activities. During the initial phase, the purpose of the research was explained, and individuals were invited to attend introductory workshops on PV. Semi-structured interviews and informal conversations were conducted with 21 participants. The interviews occurred during parallel *Cocina Colaboratorio* activities such as walks (mainly in homegardens (11) and plots (4)) and cooking sessions. Informed verbal consent was obtained regularly before each activity, and any recording or filming was also subject to consent. Interviews and informal talks were conducted throughout the PV process and lasted between 15 and 60 minutes. The study was conducted through visits to the participants' pastures, homegardens, plots, and the community agroecological plot managed by the *Cocina Colaboratorio* in the community. The questions were designed to explore the participants' emotions, relationships and feelings about agroecosystems. During the visits to the plots and pastures, they showed the diversity of crops they manage and explained daily activities. This led to informal conversations about the participants' relationship with agroecosystems. The visits and interviews were documented using field notes and recording when consent was given.

Introductory workshops

An initial workshop was held for those interested in participating. Eight women attended the introductory workshops, and six continued the process, forming two groups of three.

The initial session included outlining the objectives, answering questions about the participatory video (PV), providing training on using the equipment, introducing different filming techniques, and collaboratively designing an informed consent activity tailored to the video production and screening process. We used icebreakers, exercises and games developed by Lunch and Lunch (2006) to facilitate engagement. Separate sessions incorporating the above elements were also conducted with three male participants. Depending on each participant's schedule and availability, work sessions were conducted individually with each participant or group.

Storyboarding, filming/acting and video edition.

Subsequent activities focused on the technical aspects and core elements required to create a video. The exercise called "Margolis Flower" (Lunch and Lunch 2006) was implemented to select the theme and draft the script. It consisted of iterative rounds of questions where participants recorded the answers of their fellow participants with two or three words noted on cards. This exercise fosters active listening, allowing shy people to share their ideas in a few words with the rest of the participants, ensuring all voices are represented in the collective organization of the topics. These were later shared and collectively organized by themes and priority areas around the local agroecosystems. Both group and individual filming was then carried out according to each participant's schedule, ensuring they had different roles (such as directing, recording or being recorded). Participants began the video editing phase after receiving training on the Filmora software. Nevertheless, the editing process was finished remotely due to logistical and time-related restrictions while keeping in touch with the participants through WhatsApp. Additionally, one of the participants continued to create their film online. This stage has several iterative cycles; as the participants advanced in the filming or editing steps, they returned to the script to modify it or film other scenes to complete the emergent ideas.

By February 2022, seven films were co-produced (see Supplementary Material). The duration of each video ranges from two to 19 minutes. Three of the films focus on homegardens. The film "*Los Frutos*" (The Fruits) shows the variety of fruits, trees and

plants that can be grown in a homegarden. The participants of this film did not consent to public dissemination of their authorship or the film. The other two videos, produced by siblings Lila (16 years old) and Suany (9 years old)¹, show the lessons they learned from their mother about home gardening and maintenance through "*Enseñanza Maternal*" (Maternal Teaching) and "*Que Vengan los Pájaros*" (Let the Birds Come), which shows how caring for the home garden and trees can lead to an increase in bird visits.

Four films were dedicated to the plots and pastures. Pascual (31 years old), a small farmer in "*Los frutos de nuestra tierra*" (The Fruits of Our Land), presents his daily work routine and the diverse crops he cultivates on his plot. In a separate film titled "*Parcela y Potrero*" (Plot and Pasture), Miguel (18 years old) provides an on-foot tour of his pasturelands, introduces his livestock animals, and explains some of his activities on the farm. The third film, "*Entre el Campo y la Escuela*" (Between the Field and the School), was made by Abimael (25 years old), in which he shares his experience as a primary school teacher and how it relates to his work in the field. In the final film, "*Platillos Saludables*" (Healthy Dishes), Nelba (48 years old), a homemaker, gives step-by-step instructions on how to prepare vegan sausages and soy drinks grown by her partner on the farm.

Community Screening

A community screening of the films was held in March 2022. It was attended by 35 community members, five of whom were the authors of the videos, including adults (eight men and nine women) and children. During the screening, participants were asked for their thoughts and if they identified with any of the testimonies or themes in the videos.

2.3 Analysis of the PV process and films

To explore the relational values of agroecosystems held by Loma Bonita people through the PV process, we analysed the following qualitative and mixed media data (Figure 2):

¹ Maternal consent was obtained to allow their participation in the research and disseminate the video.

- researchers' fieldnotes from informal conversations about the participants' relationships with their agroecosystems during walks, homegardens visits, and other parallel activities such as cooking sessions and *Cocina Colaboratorio* workshops;
- data collected from the PV workshop sessions (e.g. Margolis Flower exercise, storyboarding);
- twenty-one semi-structured interviews with ten women and eleven men focused on the importance of agroecosystems to people and their relationships;
- the seven final films and montages;
- the recording from the community screening session.

We conducted a qualitative analysis, revealing the relational values expressed in the participants' narratives about their relationships with agroecosystems and other individuals. Videos and semi-structured interviews were transcribed verbatim. The information was deductively coded using NVivo 11 software. The codebook was created following Chan et al.'s (2016) typology of relational value: *Cultural Identity, Social Cohesion, Social Responsibility, Moral Responsibility for Non-humans, Individual Identity and Stewardship (Eudaimonic and Principle/Virtue)*. This categorization was iteratively modified based on the participants' narratives and other relevant literature, adding one category and subcategories of relational values. In this sense, the additional category called *self-determination* was included based on the Friedrichsen et al. (2021) codebook, related to farmers' autonomy and its impact on soil health, and Sheremata's (2018) arguments about how relational values of the *Inuits* fostering the self-determination of indigenous people. In our analysis, we extended the term *stewardship eudaimonic* and *stewardship principle/virtue* to *stewardship*, following the subset of relational values considered by Allen et al. (2018). At last, we identified different narratives based on the intersectional characteristics of the participants and the different types of local agroecosystems, including homegardens, plots, and pastures.

3. Results

3.1 Diversity of relational values of agroecosystems

We found a great diversity of relational values of agroecosystems, some of which, such as self-determination, have not yet been well studied in the literature. We found that these relational values could be empirically grouped into the importance of peasant pride, traditions and heritage (*individual* and *cultural identity*) that reflects a strong connection with their land, the defense of rural lifestyle and agency in the management of their agroecosystems (*self-determination*), *social cohesion* derived from relations with the family and the community and the multiple interactions with agroecosystems, and *social responsibility*, *moral responsibility to non-humans* and *stewardship* related to caring for the land as a way of caring for fellow humans (present and future) and non-humans, with a sense of good life and doing the right thing. We obtained an empirical, unique typology of relational values enriched with people's narratives derived from their personal and context-specific experiences related to their agroecosystems (Table 1). This typology included seven main categories of relational values and fifteen subcategories adapted to the context-specific relationships participants with the land and agroecosystems. *Social cohesion* was the most frequently registered, followed by *social responsibility*, *individual identity*, and *self-determination*. We found that this still unexplored *self-determination* relational value is manifested through the agency of small farmers in deciding how they care for their agroecosystems, which influences the care for the food that allows their families to subsist. Also, this relational value is attached to a sense of pride in being a peasant and freedom to choose their working times, inputs and seeds, and the active management of their agroecosystems.

The Participatory Video process, through the different stages, enabled the people of Loma Bonita to make visible the relevance of relational values in their daily lives.

In particular, during the storyboarding and filming process, participants consciously verbalized what they wanted to bring to the fore about their relationships with the agroecosystems: "*I think it would be to tell from the beginning, life as a child and the end of what I am doing now, or almost in between the field and the school*" [...] "*if we shoot at*

the top, we can shoot the calves and then go down to shoot the maize harvest". Feelings and emotions about agroecosystems were raised through the process, with some locations evoking childhood memories and anecdotes. With each take with the camera and deciding what to include in the video, there was greater empowerment and proactivity. The relevance of relational values in their day-to-day life also became evident in one of the films, "The Fruits of Our Land", in which a young small farmer without land tenure was moved to show what he produces and has achieved through his work and the support of his family, who lends him the land (Table 2).

The community screening was well attended by community members who were not involved in the PV process. In a fun and relaxed atmosphere, attendees could express their feelings and how they felt represented in their peers' films. Even though it was held on a weekday and ended late at night, people, including older adults and children, stayed until the end of the screening. They participated in the discussion, laughing, clapping and sharing their experiences and stories that further illustrated the values revealed. *Self-determination, cultural identity, moral responsibility for non-humans and stewardship* resonated with the audience. One man from the audience reacted with emotion and shared his feelings about working the land: "*There are people who grow up in the countryside and adapt to the city, and those of us who don't, it is not for us [laughs], although we suffer, in a certain way we are happier [laughs], because we are free [laughs], because you are free, the truth is that in the countryside I feel a freedom, here in the countryside, in the city, just looking at them I feel like I am a prisoner...*" (*self-determination and stewardship/eudaimonic*). *Cultural identity* emerged and was strengthened by another participant that shared [about caring of the land]: "*well, the inheritance left to us by our parents, our grandparents. It is what they taught us to do from a very young age... to work the land, to cultivate it*". Moreover, the usefulness of the PV process in their daily lives was highlighted by one of the film-makers: "*It was helpful for a little bit of history, but if we look at it closely and analyse it, it lacked a little bit more detail, right? But as it was the first time, it was a... a very unforgettable experience because it was new for me*" (he wants to keep training and uses it in his daily life).

Table 1. Definitions and examples of relational values of agroecosystems revealed by participants. The coloured bars are proportional to the frequencies of mention of each category.

RELATIONAL VALUE CATEGORY	DEFINITION	EXAMPLE QUOTE
CULTURAL IDENTITY	Refers to the importance given by the people to agroecosystem, for what they represent in terms of their local traditions, traditional knowledge and family heritage.	<u>Local traditions.</u> "This is where everything grows well [the plot] because all the people cultivate the same things, maize, beans, everything is the same as what all the people harvest" <u>Traditional Knowledge/ Family heritage.</u> "(it is the) inheritance that our parents, and our grandparents left us, it is what they taught us to do from a very young age, to work the land, to cultivate it [...] as a heritage for us".
SOCIAL COHESION	Refers to the agroecosystem as a bonding space where interpersonal relationships are configured and/or social ties are strengthened.	<u>Exchanges.</u> "Now the rue, the basil, all these plants, people consume them as medicine, and I like to share them, when I have them, then I share them". <u>Intergenerational work, family sharing.</u> "When he has asked me for advice, I tell him [it refers to another farmer]: Look, son, do it this way and try it, and it will work for you because it has given me results. That interaction is a big part of what agriculture is for me"
INDIVIDUAL IDENTITY	Refers to the importance people give to agroecosystem because they provide a sense of self and belonging.	<u>Sense of place.</u> "[Talking about how she would feel if she did not have her home garden] "I would feel bad because let's say that this is our life, at least I personally do like my chickens, I do like my plants, and I don't know, I think I would feel sad if one day they were taken away". <u>Significant memories and past experiences.</u> "Here we have a little tree that we call marañón (cashew tree) [...] in the other plot where I was telling you that we used to play, we chose these trees because they are smaller, and here we used to play, we climbed on the trees, we swung, in short, we had a really good time".
SELF-DETERMINATION	Refers to values related to practices and knowledge of agroecosystem that facilitate management and agency in caring for agroecosystems and people's lifestyle.	<u>Decision and control of inputs to care of the land and oneself.</u> "Well, one works according to one's capacity, that is, no one is forcing you to do this or not, free will. Some people even say: I do want to work for two, three hours, then I rest for an hour, I take a nap, then I get up again, there is no one forcing me to do this or not. Well, it is an improvement, you have no boss. In other words, only one is one's own boss, but nevertheless one must make an effort, it does not mean that because I do not have a boss, I will not have the vision to be able to move towards the future". <u>Agroecosystem management in relation to their knowledge.</u> "In the field, I tell a lot of people that, in the field, you need to have a deep understanding of the plot, you have to know the place completely."
STEWARDSHIP	Refers to values related to situations and activities of caring in the agroecosystems, which are linked to a good life and doing the right thing for the benefit of others.	<u>Principle or virtue of doing the right thing.</u> "The same thing helps the plant because since I've been here, I almost never burn garbage. It is rare for me to burn garbage, but most of the time I don't, because I am always picking up the garbage and putting it in the banana plant...". <u>Having a good life.</u> "The truth is that I like it when I go into my garden to clean it, pulling weeds, I enjoy being there [...] and being busy, a busy mind is a healthy mind [...] I think that what we do is healthy, taking care of the plants, taking care of our animals".
SOCIAL RESPONSIBILITY	Refers to values linked to practices in agroecosystems that manifest care and support among individuals.	<u>Food care.</u> "We raise our own farm chickens, which are better than the ranch chickens"[...] "the ranch chickens are raised only on chemicals [...], but the ones here take three or four months to develop, but they are eating pure corn, dough or grass, and they are healthier than the ranch chickens, that is the difference." <u>Care through other practices.</u> [talking about sharing a plot with another member of the community] "since he has nowhere to plant, we gave him a little piece of land here".
MORAL RESPONSIBILITY FOR THE NON-HUMANS	Refers to the care of non-human nature, regardless of one's benefit.	<u>Taking care of the crops, of the land.</u> "There are trees, and the animals need shade and if we didn't have plots or if we had plots but there were no mountains, it would affect the water, the cornfields would dry up, the animals would dry up". <u>Taking care of other organisms that live in or come to the plot.</u> "We take care, we put almost no chemicals on it because there are plants that the animals eat and that contain some kind of medicine, so I tell my husband 'Don't fumigate', I tell him, 'It is better to remove the bush, but with a hoe, with a machete'..." <u>Care of breeding animals.</u> "They [my animals] really like to eat onions and onions... they are very healthy, but besides that they are also an anti-inflammatory, so I am always bringing them bush".

Note: The selected example quotes refer to a relational value category; however, the same quote can be articulated to multiple values.

3.2 What are the differing narratives for relational values according to intersectional characteristics?

Relational values were stated through differing narratives according to intersectional characteristics of those who hold them, such as age, gender, occupation, land tenure, religion or family background (Table 2). We found commonalities between various individuals in the community sharing those intersectional characteristics. For instance, women caring for agroecosystems, mainly homegardens, expressed the importance of reaffirming this care as a job and part of their *individual identity*. In contrast, the men who farm the plots express their *individual identity* as farmers with pride and without the felt need to emphasise this is a job. For some, such identity value was also expressed concerning the sense of belonging derived from the work in the land. Regarding *self-determination* based mainly on agency and autonomy, the main difference in the narratives emphasised what is particularly important to them and what they can or want to do. That is, some participants pointed to the importance of being able to choose the inputs or seeds to grow themselves as a fundamental requirement for caring for the land. For other participants, the priority was consuming food they had grown and harvested themselves, based on their experience and knowledge. Some participants mentioned that having spaces such as agroecosystems allows them to have a place of their own where they can feel free and exercise their autonomy. In the *cultural identity* category, the differences were stated in growing crops because it is the family's work; meanwhile, other participants pointed out that they continue to grow crops to maintain habits and preferences to consume certain foods. On one hand, some narratives were focused on the importance of keeping the tradition of preparing family meals. The *stewardship* value was expressed by caring for the agroecosystem, leading to a fulfilling life and the satisfaction of seeing their crops grow. Others mentioned agroecosystems as part of their emotional well-being and a means of reducing stress and the importance of knowing they are doing the right thing. Concerning the value of *social responsibility*, some participants referred to planting crops that benefit their families' well-being. On the other hand, a group of participants did not plant with a focus on consuming food and animals from the family plot to care for the family's health.

Table 2. Narratives for each relational value with the corresponding intersectional characteristics of who stated them. Source: Own elaboration.




	QUOTES	PERSONAL CONTEXT
INDIVIDUAL IDENTITY	"My little brother, who is there in the shop, says to me, "What job do you have?" why? I mean, taking care of the animals is a job"	Female 53 years old/Homemaker and taking care of her own homegarden 2 children/ single parenting/Catholic
	"I am proud to show you the work I am developing. Well, I feel very happy to have what I have so far, and I am going to keep on working hard"	Male 31 years old/Farmer on a plot left by his family and support to researchers as fieldwork technician/2 children/married/Catholic
	"As I said, we are farmers, obviously, where do you think the farmers comes from, well, more than working the land"	Female 43 years old/Homemaker, taking care of her own homegarden and help in a family shop/3 children/married/Catholic
CULTURAL IDENTITY	"My <i>apasito</i> (father) already came with that belief of sowing; they had that belief already in the beginning [...] He was sharing it with us; my <i>apá</i> is still alive, he is old, already 105 years old, my <i>apá</i> , but he already lives on the farm"	Male 54 years old/ Farmer on own plot (shared with family members) and bricklayer/ 2 children/married/he does not live all the time in Loma Bonita
	"What my mother left me as a legacy that she taught us, well, I'm teaching them, like, for example, how to make corn <i>pinol</i> , she can still make it [...] we don't consume <i>Nescafé</i> , what you buy in a jar, we make it from the same corn, we break the corn and we drink it as coffee and she knows how to make it"	Female 48 years old/Homemaker and taking care of her own homegarden Her partner cultivates a rented plot 2 children/married/Seven-day Adventist
	"Here there is no more <i>hacienda</i> [...] more cacao, that is, more cacao crop and if we throw that away, we are already used to drinking the pozol with cacao and the <i>polvillo</i> or <i>pinol</i> "	Male 25 years old/Farmer on own plot and pastures (shared with family) and pre-school teacher/ 1 son/ married
SELF-DETERMINATION	"Is what you are going to do, we have something of our own about what they can't tell us anything, we can sow whatever we want and no one says anything [...] and so we can sow, harvest for ourselves"	Female 16 years old/Paused her studies due to the pandemic/ Contributes to the care of the family plot / Seven-day Adventist
	"It's normal (maize), because they say the improved maize, when you sow it [...] and [later] you want to sow the normal maize, you don't get it [...] They say that it damages the soil"	Male 18 years old/helps in the care of the plot and pasture with his uncles/Catholic
	"In the plot we sow our plants and here we harvest them, we eat what we sow" [Why is it so important for you to eat what you sow yourself] "first of all because I know how I am growing them, what I put in, what to put in and what not to put in"	Female 43 years old/ Homemaker, she studied to be a health promoter, taking care of her own homegarden/ her partner is in charge of a rented plot of land/4 children/married/Seven-day Adventist
STEWARDSHIP	"I love to observe, to clean the soil, to sow, to see it germinate, to see it grow, to see it blossom, to see it bear fruit and to see it harvested, it's a joy"	Male 60 years old/ Farmer on a rented plot and manages a shop/ Non-Mexican 2 children/Seven-day Adventist
	"I feel that I distract myself for a while in the <i>monte</i> [in the part of the plot that has rainforest] because I also get bored here in the house, I have to distract myself for a while... And then, as I live alone, the doctors also tell me that you have to distract yourself for a while, because, as you are alone, you get very stressed"	Female 52 years old/Homemaker and taking care of her own homegarden 3 children
	[Talking about whether he would like to cut down the rainforest reserve on the plot] "On the one hand, for the benefit of us, for the cattle, yes, but on the other hand, no, because they are cutting down the trees and nature"	Male 25 years old/Farmer on family plot and sometimes works on pasture
SOCIAL RESPONSABILITY	"The products [we buy] from the shop, well, for me personally, what I think is that they have chemicals and obviously they are going to affect our health because all the food is already processed"	Female 23 years old/non-Mexican/Taking care on her own homegarden and is a home saleswoman/her husband works at the plot and pasture/1 daughter/ married/Catholic
	"I was very interested in planting, well, because of my children, like rue and basil, which are good for when you have small children"	Female 33 years old/ Taking care of her own homegarden and is a home saleswoman 2 children/Seven-day Adventist

3.3 Relational values according to different agroecosystems

Identifying relational values of a particular agroecosystem is complex as participants engage with multiple types simultaneously. Individuals have intricate relationships with the different agroecosystems to varying degrees. Homegardens are usually the responsibility of one or two family members, mainly women, but as they are near or around the house and the gardens, they are part of the daily living space of everyone. Men often manage agricultural plots, but many women contribute to planting, weeding, harvesting, and shelling maize or beans. Managing the pastures and cattle also involves the family, mainly the men, and frequently requires outside labor (day laborers) for some heavy tasks. So, despite these differences, we only found slight differences in the frequency of mentions of relational values among the agroecosystems. In homegardens, the outstanding values were *social cohesion*, *individual identity*, and *social responsibility*; in the plots, *self-determination* and *social responsibility* stood out, whereas, in pastures, the most revealed values were *social cohesion* and *individual identity*.

However, we observed somewhat different narratives regarding which agroecosystem participants are most connected (Table 3). Ethical treatment of animals (*moral responsibility for non-humans*) is emphasized across agroecosystems, focusing on farm animals in homegardens, wild animals and non-living things in plots and pastures. Social responsibility in plots is demonstrated through community mutual support practices such as *cambio de manos* [exchanged labor], while in homegardens, it involves maintaining medicinal plants for the family and neighbors. Regarding the value of *social cohesion* in the pastures, relationships among the ranchers and external people, such as students and veterinarians, stand out. In the plots and homegardens, a higher emphasis is placed on connections with family or among neighbors.

Table 3. Quote examples elicited by participants regarding the unveiled values for each agroecosystem. Source: Own elaboration.

	HOMEGARDEN	PLOT	PASTURE
			
MORAL RESPONSIBILITY FOR NON-HUMAN	<p>Emphasis on care for breeding animals</p> <p>"that's why I can't have anything more in the homegarden (of plants) because they (the chickens) are free, maybe if I were to enclose them, that's the only way I could, or if they were smaller" [-Would you like to enclose them or why do you want to leave them like that?] "because they are freer [...] I don't like to see the animals crowded together and more than that little pig needs freedom"</p>	<p>"only the bird (that arrives at the plot), eats the corn, starts to break it [...] Well, we can't fight it anymore, let it eat it"</p>	<p>"and then we clean it (the soil) with a machete, so that we don't use so much liquid, because if we use liquid all the time, we are also destroying the soil, the minerals it contains, right?"</p>
SOCIAL RESPONSIBILITY	<p>Emphasis on common and specific practices</p> <p>"there are ladies who come, who need a plant for their baby, well, since I have one, I give them [...] I like to share whatever they need for their medicine"</p>	<p>"I'm going to tell him, I'll give you a hand these days, okay? first and then you give me a hand... That was the system we had in my family because we started sowing on May 3 and finished on May 10, we started with my grandfather and from there with my uncles and all of us and in the end we all finished (sowing)"</p>	<p>"when you are at home for two or three days you get bored, you want to go to the fields, you look at cattle in the pastures. Sometimes there are people, like your best friends, who (their cattle) get stuck, a cow gets stuck in the mud. They ask for help to get it out and we get it out, that's how we go [...] That's why I like to help people a lot"</p>
SOCIAL COHESION	<p>Emphasis is placed on community or external relations, with less focus on the family level</p> <p>"the neighbors come to ask me to sell them some eggs and sometimes they look for the hens' eggs for another hen to hatch them, for when someone doesn't have them, or for example when I don't have eggs, I can go to my neighbor or the people I know here and we exchange them, the same thing happens with the plants, at least this one I just brought right now"</p>	<p>"since we are five brothers, each one of us has a little bit (of land), but we all have it together, for example here where I sow my corn, we all sow there together...together we work [...] exactly what we get we share the same"</p>	<p>"I like it best when we... manage, work with the cattle [...] because that's when we start joking around, and practically everyone ll the members who have their animals (cattle) get together"</p>

4. Discussion

4.1 Relational values and agroecosystems

The wide diversity of relational values revealed by the PV process contributes to the growing literature on this topic. Our findings expand on the current understanding of how farmers establish deep connections with the agroecosystems that are intertwined to the

instrumental values associated with the primary purpose of food production (Jones and Tobin 2018; Tobin 2023) and contribute to a lack of empirical studies in agroecosystems (Pratson et al. 2023). Through the lens of relational values, the inhabitants of Loma Bonita were able to make explicit these relationships of key importance in their lives; our findings confirm how these values are modulated by people's identity, history and lifestyle, and that support well-being, agency, ethics, responsibility, care, and connections to community, family and land (Chan et al. 2016; Chapman et al. 2019). Our results support that relational values are about describing unique and irreplaceable relationships (Himes and Muraca 2018); *they are foreground relationships, are not solely instrumental, and are non-substitutable* (Gould 2023; Pratson et al. 2023) . The PV process revealed how constant observation and a deep understanding of the rhythms and needs of a particular piece of land and its unique characteristics are put into practice to manage their agroecosystems and linked to such relational values (Chapman et al. 2019).

We found that social cohesion, cultural and individual identity were among the most mentioned relational values interconnected with other relational values, expanding on previous findings (Pratson et al. 2023). The importance of the pride of being a farmer, the traditions associated with this activity and the heritage, though only established over a few generations since their arrival to this region, reflects a strong connection with their land. The pride of the community heritage and farmers' identity were frequently highlighted by participants during the PV process; this concurs with what Friedrichsen (2021) referred to as *dignity and pride for livelihood*. We considered the importance of memories and past experiences associated with agroecosystems as contributors to the sense of place commonly included as part of individual identity (Horlings 2015; Allen et al. 2018). Social cohesion was critical concerning on-farm responsibilities and activities, such as sharing resources and labor, strengthening community ties and promoting a shared sense of purpose. In our study, participants mentioned exchanges of seeds, plants, fruits, and herbal remedies, along with the intergenerational exchange of practices and knowledge; farming fosters a sense of community and togetherness within the diverse spaces of the agroecosystem. This mutual support in farming and leisure activities strengthens social cohesion. These social relations are also critical in identity configuration, such as cultural

identity rooted in local traditions, including food, traditional knowledge, and family heritage (Allen et al. 2018; Chapman et al. 2019). Our study confirms how social cohesion is particularly relevant in agriculture, which is seen as a fundamental link between people and nature (Allen et al. 2018). We found further support for how connections between farmers and the land extend to their relationships within the family and community and form the cornerstone of the societal fabric, primarily in communities highly dependent on subsistence agriculture (Chapman et al. 2019). Agriculture is more than just a livelihood in these communities: it is a cultural and social anchor (Berry 2015), fostering a sense of unity and collective identity.

The value of self-determination, which emphasizes autonomy, freedom, and control, was pivotal to farmers engaging with their agroecosystems. This value of self-determination, with many mentions as well, was found to be deeply rooted in farmers' knowledge and way of life, as proposed by Friedrichsen et al. (2021) regarding soil. The narratives around this value underscore a sense of freedom that contrasts with urban life. Farmers value the control they have over what they produce and what they grow on their plots. This control is not only about agricultural production but is also closely linked to the health and well-being of their families. By choosing what to grow and how to grow it, farmers directly influence the quality and safety of the food they provide for their families. This capacity of choice is consistent with Chapman's (2019) findings on the values of *active land management*, *application of parcel-specific knowledge*, and *community agency over the landscape*. Just as Chapman et al. (2019) highlight the importance of community participation and knowledge in managing landscapes, self-determination underlines the importance of farmers' knowledge and agency in shaping and maintaining their agroecosystems. Decision makers cannot consider farmers as passive caretakers of the land; they are active agents who make informed decisions based on their extensive knowledge, experience, and community needs.

Social responsibility, stewardship and moral responsibility for non-humans are also interdependent. As recently documented, our study aligns with other empirical research identifying characteristics akin to these values (Friedrichsen et al. 2021; Monroy-Sais et

al. 2022; Tobin 2023). Preserving and sharing biodiversity with neighbors, family, and other communities, nurturing food production for family and caring for others through diverse practices like sharing land with those who do not have their own, contribute to the configuration of farmers-land, farmers-community and farmers-landscape relationships proposed by Chapman et al. (2019) which strongly resonate with the value of social responsibility (Allen et al. 2018). In turn, the *stewardship* values held by participants are influenced by how they sense their environment in a symbolic and meaningful dimension, potentially leading to what has been identified as an identity as *land stewards* (Allen et al. 2018). Several participants recognized the commitment to caring for the environment by carrying out certain practices and activities on their agroecosystems. The knowledge of natural cycles, the time the land needs to rest, and the care of soil with organic fertilizers are reflected in their narratives. Our findings concur with previous studies highlighting attitudes of respect, care, and defence of other animals shown in other studies (Quinn and Halfacre 2014; Chapman et al. 2019). Values of moral responsibility for non-humans are also closely related to this stewardship virtue. In addition, relational connections with nature are generated, where there is enjoyment in contemplating or knowing that certain organisms reach the plots and homegardens. These are complex relationships, full of sensitivity and empathy, seeking a harmonious state by trying to balance both parts.

4.2 Narratives that unveil relational values

The analysis of the content of the PV and the conversations around them extended beyond examining statements that resembled values to facilitate individuals in expressing their values. We also considered people's language when discussing their customs, interpersonal relationships, and agroecosystem insights and how these conversations intersected with their value systems, following Chapman et al.'s (2019) methodology approach. As previously shown, this approach allowed us to explore how relational values are personal and contextualized (Tadaki et al. 2022; Chapman and Deplazes-Zemp 2023), and can be interpreted differently depending on contexts (Hoelle et al. 2022; Chapman and Deplazes-Zemp 2023) or among individuals of the same population (Monroy-Sais et al. 2022). This approach highlighted the differences between women and men related to the perceptions of their work on agroecosystems. For example, some

female participants highlighted how caring for the homegardens and plots is invisible and not recognised as an actual job. However, these contributions are part of their individual and cultural identity and are linked to caring for the family and biodiversity. Recognition of their identity as farmers has been shown to be necessary for women to benefit from programs or policies and may be related to inequalities in access to land (Radel 2011; Schreiber et al. 2023). Addressing who can use the land is necessary to contribute more equitably to managing and tackling agricultural problems (Chaplin-Kramer et al. 2023). The analysis of narratives also allowed us further to understand the complex intertwining among the different relational values. For instance, participants did not differentiate between collective and individual approaches to care or protection. Individual values included responsibility and care in a collective setting, either directly or indirectly, due to specific values rooted in nurturing connections with others or considered within the family context. Also, family relationships were deemed beneficial as they function as a support network by sharing knowledge and providing emotional support, as has been shown to be especially for farmers who are new to farming activity (Scott and Richardson 2021; Schreiber et al. 2023). The relevance of these interactions and support among farmers can play a fundamental role in contexts of vulnerability and change (Liao et al. 2022). The narratives also revealed that agroecosystems are seen as interconnected, and thus, relational values are not specific to any of them but rather weave across them, highlighting their interdependencies.

4.3 Relational values at the agroforest frontier

Unveiling the relational values of agroecosystems can be pivotal for driving the transformation towards sustainability within agricultural landscapes. These values reflect the multifaceted connections between individuals, communities, and their agricultural environments, shaping interactions essential for sustainable transformation. The values revealed in our study are consistent with those found elsewhere that are aligned with more sustainable futures (IPBES 2022; Harmáčková et al. 2023; Pascual et al. 2023), with those that support a “good life” (Chan et al. 2020).

Interestingly, even though Loma Bonita is located within a region where rapid deforestation and conversion to agricultural and pasture land has occurred in the past 30

years (Carabias et al. 2015; Balvanera et al. 2021; Berget et al. 2021), the relational values found do not align with a purely utilitarian and extractivist logic. The relational values found in our study concur with those of commitment to responsibility and care within the community and among family members found elsewhere (Chapman et al. 2019; Santiago Vera et al. 2021; Tobin 2023). The inhabitants of Loma Bonita prioritize collective well-being over individualism, in concordance with global findings (Harmáčková et al. 2023; Pascual et al. 2023).

Our findings underscore the importance of considering the relational values of those who inhabit and manage the land in designing public policies to address biodiversity loss and deforestation, especially for the highly diverse tropical forest. Despite the diversity and relevance of relational values found here, public policies for the Lacandon Forest (and elsewhere) have been built around the instrumental values of these forests and of the resulting pastures, as well as around the intrinsic values associated with the unique biodiversity harbored (Balvanera et al. 2021). The arrival of settlers into the Marques de Comillas region starting in the 1970's was aimed at fostering cattle production to meet global meat demands, while the creation of the Montes Azules Biosphere Reserve in the 1990's aimed at maintaining its unique biodiversity driven by national and global biodiversity conservation policies (Balvanera et al. 2021). Only recently, relational values tied with the land and the trees contributed to the scaffolding of the new governmental program *Sembrando Vida*, *Sowing Life*, which is only starting to be evaluated (Gómez-Rodríguez et al. 2023). More studies are needed to understand how these conflicting values can be navigated and harnessed into policy design (Chapman et al. 2019; Pascual et al. 2023).

The agency of farmers and their families, clearly highlighted through their relational values, has not been considered in the design of public policies, however, we recognize that it is not the only point of incidence on people's agency. Some have emphasized yields and their indirect positive benefits on the objective well being of farmers, with mixed results (Rosset and Altieri 1997), leading to the imposition of technologies and inputs that are not consistent with small farmers needs and perceptions (Giraldo and Rosset 2018; Nyström et al. 2019). Our findings highlight how relational values support more sustainable

management schemes based on seed conservation, reducing the use of inputs and attuning the management to the specific needs of each agroecosystem. The paramount role of farmers and their self-determination, also deemed critical in our findings, is still to be explicitly incorporated into the design of policies that promote, rather than ignore, their agency (Sheremata 2018; Chapman et al. 2019; IPBES 2022). Such approaches could build upon local knowledge to foster stewardship, as suggested by Chapman et al. (2019). Nurturing the local perspectives of these critical perspectives of these fundamental agents of change is consistent with recent work on inclusive decision-making processes towards more sustainable futures (Arias-Arévalo et al. 2023; Lenzi et al. 2023)

4.4 Participatory Video, relational values and long-term transdisciplinary transformation

Long-term, place-based transdisciplinary approaches may incorporate more equitable procedures that positively impact local communities. Over the six years that Cocina Colaboratorio has been active in the region, it has established a trustworthy and reputable network with community stakeholders, aiding research endeavors such as this one. Conducting collaborative research fostered a comfortable atmosphere and attentive engagement, reinforcing trust between individuals and enhancing robust and reciprocal learning relationships. Collaboration with local community members is crucial for enhancing long-term processes (Horlings 2015; Chaplin-Kramer et al. 2023). Such collaboration can help legitimize local values and perspectives in academic and public policy spheres. These values and perspectives could be incorporated into horizontal participatory processes that foster more equitable, reciprocal, and non-extractive relationships (Hill et al. 2020; Marzi 2023).

The use of PV enabled participants to articulate their values on their own terms. The participatory nature of the process allowed us to minimize potential biases introduced by the researcher, carefully consider the internal dynamics of the community, and fully understand the language and the context. This approach allowed us to reduce the risks of extractivism as much as possible. Given the strong power imbalances among stakeholders (Arias-Arévalo et al. 2023), allowing participants to be heard on their own

terms is an important step towards promoting fairness (Lele et al. 2023; Lenzi et al. 2023), independence and empowerment (Hill et al. 2020). Such an approach was particularly relevant in the face of the neocolonial transformation of the region, migration phenomena, and land tenure difficulties and inequalities faced by the population of Loma Bonita (Cano-Castellanos 2013; Berget et al. 2021), participants were it becomes crucial to pay attention to the tools and methods employed.

Using PV allowed exploring dimensions of human experience that could not otherwise be unveiled. The long and iterative process of mapping, walking, storyboarding, filming, and editing allowed us to connect memories with the present territory and the complex dimensions of the relations between individuals and those with nature. The participation of youth and women was essential, as it contributed to a wider diversity of voices that have been called for. Our findings are consistent with those of Eastwood et al. (2023), who have suggested that PV can motivate young people to participate. Many people preferred PV to participate in large workshops or interviews. Participants can select their own spaces, ways of doing, and choices, as previously explored (Lunch and Lunch 2006; Morales et al. 2021). Other arts-based approaches (Marquina et al. 2023) based on writing letters have also provided spaces for expressing themselves in confidence and privacy without feeling overlooked. Our results underscore previous calls for creative research methods that are more attractive and horizontal (Gould 2023; Marzi 2023).

The PV process to unravel relational values fostered the ongoing transformative change already ongoing through the activities of Cocina Colaboratorio. It provided safe spaces for dialogue and reflection. It allowed for unheard voices to be screened in front of the community. It provided unknown means for expression, and increased participant's confidence and sense of ownership. We concur with Marzi (2023) on the 'impact-in-process' of co-producing PV and its potential to contribute to social change and transformation. It also activates what Pascual et al. (2023) have identified as values-centred leverage points for navigating towards more just and sustainable futures. It made visible a wide diversity of values that had not been made explicit, brought in rarely heard voices, but also challenged dominant paradigms about what constitutes a good life and a desirable relation between people and nature by making visible reciprocal and responsible

relationships that can lead towards more just and sustainable food systems. As such, this exercise is probably a strong booster of the long-term transformations emerging from our transdisciplinary process.

5. Conclusion

In this study, participants were allowed to reveal strong relational values derived from their multiple and complex relationships with their agroecosystems through a facilitated PV process. Identifying relational values of local managers at the agroforest frontier provides unique examples/insights of the diversity of values and narratives that contribute to the care and well-being of people and nature. In essence, the practice of agriculture in these contexts is imbued with values that transcend mere food production. It embodies a deep-seated ethic of care, stewardship, and mutual support, essential for the survival and thriving of communities engaged in subsistence farming. Our findings emphasised that intersectional characteristics of individuals can shape different expressions of the same value. This allowed us to broaden the discussion about what individuals consider a priority and demonstrate the usefulness of exploring diverse value narratives to identify commonalities among different contexts or people. We found that slight differences between agroecosystem narratives are closely related to how individuals simultaneously relate to different agroecosystems and how important they are to their daily lives.

As we illustrated, recognizing place-based relational values can help to better understand the depth of the connections and interweavings that exist between individuals, the community and different agroecosystems, which, it should be noted, do not respond solely to instrumental relations. The use of the VP under a transdisciplinary approach shows the potential to integrate in a more horizontal form a wider diversity of voices and to unveil values that are not so explicit. Integrating relational values into the design of public programs and policies could result in a process that guarantees the agency of communities and at the same time contributes to biodiversity conservation, facilitating the sustainable transformation of food systems.

Acknowledgements

This work would have no reason to exist and could not have been undertaken without the warm support and co-production of many inhabitants of Loma Bonita, Chiapas and Cocina Colaboratorio colectivo. Specially, we acknowledge the collaboration with Lila Jamangape, Suany Jamangape, Nelba Jamangape G., Pascual Jamangape R., Abimael Mendoza y Miguel Romero, who participated in the PV process and have the authorship of the videos. Funding was obtained the Programme to support Research and Technological Innovation (PAPIIT) of the National Autonomous University of Mexico (UNAM) through grant number PAPIIT E IV200120 2020-2022, the Mexican Council for Science and Technology (CONACYT) through the National Strategic Program (PRONACE) on Social-Ecological Social Ecological Systems and Sustainability (SSyS) through grant number F003-2022-319065 2022-2024, the Global Environmental Fund project 9380 on Mexican Agrobiodiversity granted to the National Commission on the Knowledge and Study of Biodiversity (CONABIO), El Colegio de la Frontera Sur (ECOSUR) and the Consejo Nacional de Humanidades Ciencia y Tecnología (CONAHCYT) under Programa de Becas Nacionales for the master's degree scholarship received.

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Conclusiones

La continua expansión de la frontera agrícola y la rápida transformación a agroecosistemas cada vez más simplificados está afectando las diversas relaciones y valores de la naturaleza de las personas de las comunidades locales. El concepto de valor relacional al estar vinculado con aspectos de cuidado y responsabilidad a los demás y a lo no humano, resulta importante para contribuir a la transformación a la sustentabilidad.

Si bien los valores relacionales son importantes para la conservación de la agrobiodiversidad y el bienestar de las personas, en la toma de decisiones se han priorizado los valores instrumentales y ocasionalmente los valores intrínsecos, omitiendo la complejidad de relaciones que las personas tienen con la naturaleza. Por ello, esta tesis tuvo como propósito explorar los valores relacionales de los agroecosistemas en Loma Bonita, Chiapas. Así como indagar si existen diferencias en los valores relacionales dependiendo del agroecosistema y según quien lo expresa a través de una metodología basada en herramientas artísticas.

La presente investigación contribuyó al estudio empírico de los valores relacionales en un contexto situado. Se logró visibilizar que las relaciones existentes entre humanos y agroecosistemas no tienen que ver exclusivamente con vínculos instrumentales o intrínsecos, sino que existen múltiples y diversas relaciones que derivan de las responsabilidades y cuidados a los agroecosistemas, a las personas y que son significativas para su identidad individual y colectiva y satisfactorias en sus vidas. En este trabajo se develaron una diversidad de valores relacionales presentada a partir de una tipología contextualizada para la comunidad en relación con los agroecosistemas. Además, se abonó a la literatura con la identificación del valor relacional de autodeterminación que no ha sido muy explorado en la literatura para agroecosistemas. A la vez que se ejemplificaron valores relacionales revelados de forma empírica a través de narrativas de diversas personas y experiencias con los diferentes agroecosistemas.

Todos los valores relacionales develados a partir del proceso de co-producción de videos participativos se identificaron en los distintos tipos de agroecosistemas: solares, parcelas

y potreros. Se encontraron ligeras diferencias en las expresiones de los valores por agroecosistema, esto puede deberse a que los individuos se vinculan con varios agroecosistemas simultáneamente. Cabe resaltar que en los distintos agroecosistemas se develaron valores relacionales que permiten la conservación de la agrobiodiversidad y son parte del cotidiano de las personas. Esto resulta importante para continuar investigando los valores relacionales y la complejidad de relaciones que existen en distintos agroecosistemas.

En todos los participantes se identificaron los siete valores relacionales y se encontraron diferentes narrativas vinculadas a la interseccionalidad de los mismos. Es decir, el contexto específico de cada persona como la edad, el género, a que se dedica, el entorno familiar, da forma a distintas expresiones de un mismo valor. Al ser los valores relacionales contextualizados y personales se pone en evidencia la complejidad de las relaciones con la naturaleza y la importancia de considerar la diversidad biocultural existente. Esto resulta primordial para visibilizar y legitimar las narrativas de personas que generalmente son excluidas en la toma de decisiones. Lo que es necesario para la transformación hacia la sustentabilidad y funciona como un primer acercamiento para contemplar temas de justicia y equidad al reconocer la pluralidad de valores de la naturaleza.

Es importante que futuras investigaciones continúen explorando a mayor profundidad los valores relacionales en agroecosistemas e incluyan distintas características de grupos poblacionales. Se recomienda contemplar agroecosistemas con distintos grados de conservación o biodiversidad asociada y ahondar en aquellos que están excluidos en programas o políticas de conservación. Resulta crucial incluir en las investigaciones y políticas públicas los valores relacionales de distintas personas agricultoras, familias y otros actores involucrados. Esto es importante debido a que las distintas características y contextos de la población o actores involucrados, pueden dar pie a muchas más narrativas o nuevas categorías de valores. Además, puede ser útil para legitimar las políticas y evitar conflictos de valor, así como para contribuir a la construcción de futuros más justos y equitativos. A la vez, en la zona se podrían explorar qué factores influyen

en los valores relacionales, identificar valores que puedan estar siendo erosionados o conocer cuáles están en conflicto con las políticas o programas ya existentes.

Reflexiones sobre el uso de métodos basados en arte en mi investigación dentro de un proyecto transdisciplinario

En el proceso de la investigación, resultó importante cuestionar qué procesos y herramientas se utilizan para conocer los valores de las personas y que implicaciones tienen el uso de los mismos. Los valores relacionales involucran aspectos profundos y personales, lo que puede dificultar la forma en que nos acercamos a conocerlos. Ante esta complejidad, fue clave sumar prácticas creativas sin perder la rigurosidad de la ciencia, donde las artes funcionaron como un puente importante para conectar con las personas. El uso de herramientas artísticas como el video participativo permitió la incorporación de una heterogeneidad de participantes, personas que muchas veces no son tomadas en cuenta como mujeres y jóvenes. Contar con diversas perspectivas y voces fue crucial para abordar la complejidad y diversidad de relaciones con los agroecosistemas. Además, permitió un acercamiento y colaboración con las personas más horizontal y equitativa que contribuyó a llevar a cabo la investigación de manera más respetuosa. Soltar el poder desde el ámbito académico, permitir libremente experimentar con la cámara, expresar y reflexionar sobre sus ideas, elaborar sus propios guiones y decidir qué mensajes querían visibilizar sobre sus relaciones con los agroecosistemas y con la comunidad a partir de los mismos, contribuyó a que las personas se sintieran escuchadas y aprendieran nuevas habilidades en un ambiente más lúdico.

No obstante, trabajar con estas herramientas basadas en artes supuso algunos retos como la necesidad de buscar un balance entre los tiempos contemplados para la estancia en campo y los tiempos de aprendizaje de cada persona ante el uso de otras tecnologías, como la cámara y el programa de edición. Esto sumado a que el video participativo es un proceso largo y puede resultar abrumador para los participantes ocasionando que se pierda el interés dada la demanda de tiempo que implica. Sin embargo, al ser un método que permite cierta flexibilidad en su diseño e implementación, el video participativo pudo

ser adaptado a los tiempos y espacios requeridos, además dio pauta a que parte de la edición del video, se terminara en línea.

Llevar a cabo la investigación en un proyecto transdisciplinario como Cocina Colaboratorio, que lleva varios años trabajando en la comunidad y, por tanto, ha construido relaciones de confianza, facilitó el acercamiento con las personas participantes. No obstante, también supuso un reto incluir a personas que no estaban involucradas directamente en el colectivo transdisciplinario. Además, dado el corto tiempo en la comunidad por cuestiones de logística y la situación de pandemia que se atravesaba en ese período, fue difícil coordinar los tiempos con otras personas de la comunidad que participaban paralelamente en distintas actividades del proyecto.

Derivado de la colaboración en este proceso transdisciplinario surgió la posibilidad de contribuir con un capítulo de libro sobre el proceso colaborativo para develar valores relacionales en Loma Bonita (Fuente-Cid et al [en prensa]); elaborar un vídeo divulgativo para público general donde comunicamos la utilidad de herramientas artísticas como el video participativo; y una aportación con formato tipo receta en un libro de fórmulas sobre metodologías innovadoras que está por publicarse (Meza-Jurado y Fuente-Cid [en prensa]).

Reflexiones sobre el proceso de formación en tiempos de pandemia

Mi proceso de formación y el desarrollo de la tesis ocurrió durante la pandemia del Covid 19 lo que implicó, inicialmente, una adaptación de las clases en modalidad presencial al estudio en línea. Si bien el trabajo en línea fue crucial para continuar con el posgrado, el proceso no fue sencillo, donde las fallas y lentitud del internet; las limitaciones con las nuevas plataformas de trabajo; afectaciones a la salud, incluida la salud mental, impactaron el continuar con los tiempos ya establecidos del posgrado.

El trabajo en línea trajo consigo una falta de interacción y retroalimentación entre la comunidad estudiantil y docente. Estudiar en casa, implicó estar frente a la computadora durante tiempos más largos que resultaban extenuantes. Sumado a que los espacios en el hogar no estaban adaptados (como sí lo están el salón de clases o la biblioteca) y

había condiciones externas como ruidos o la intermitencia del internet y luz que dificultaban la concentración. Al mismo tiempo, resultó complicado atender al cien por ciento las actividades del posgrado bajo la presión y miedo de enfermarse por el virus, cuidar de otros familiares que enfermaron, así como perder a personas queridas por secuelas del mismo. A la vez, todas las condiciones del cuidado de la salud tuvieron que ser atendidas a través del sistema de salud privado, ante el colapso de los servicios públicos por la pandemia y la falta de atención a la salud mental en ECOSUR. En ocasiones, percibí una falta de sensibilidad de docentes que, aparentemente, no fueron afectados por este tipo de situaciones o que no eran conscientes de las mismas. No obstante, también conté con el apoyo de docentes que fueron pacientes y continuamente buscaban adaptar sus clases al nuevo formato en línea, explorando alternativas para interactuar y continuar con los aprendizajes. En algunos de los últimos cursos de la maestría, se estableció de manera optativa regresar a clases presenciales aun cuando no estábamos vacunados ni todos vivíamos en el mismo estado de la unidad de ECOSUR. Si bien era opcional, rechazarlo conllevaba a perder parte de la riqueza de las dinámicas de las clases y el poder hacerlo representó un alivio ante las clases en línea, aunque implicó exponernos a estar en espacios cerrados y con más personas, como al usar transporte público para llegar a la unidad y estar en el salón.

Por las razones mencionadas anteriormente, se condujo a un replanteamiento de los tiempos de investigación y trabajo de campo, buscando no comprometer la salud de las personas. Para ello, en la comunidad se procuró trabajar en grupos pequeños y en espacios al aire libre, con lo que los tiempos disponibles dadas las condiciones, fueron aún menores de lo previsto y el proceso de video participativo tuvo que ser finalizado en línea. Además, no me fue posible volver a la comunidad, dado el calendario del posgrado, los tiempos y protocolos de Cocina Colaboratorio y los atrasos en avances de tesis y revisiones del comité.

Hacer un posgrado durante la pandemia trajo consigo varias lecciones aprendidas. En ECOSUR se pudieron hacer visibles algunas dificultades y solicitar prórrogas para concluir el posgrado. La institución reconoció la importancia de la salud mental y se ofrecieron talleres para la comunidad estudiantil. Al trabajar en plataformas en línea se

logró experimentar y hacer uso de nuevas herramientas digitales que permitieron otras formas de enseñanza y distintas maneras de trabajar o enviar avances. Algunas veces se emplearon presentaciones que sumaban las opiniones o preguntas de los estudiantes en tiempo real; se presentó información en audios tipo podcast cortos; y se grabaron la mayoría de las clases para disponer de ellas en caso de perder conectividad. También se abrieron canales y distintas formas de comunicación o se amplificaron algunas vías que ya se usaban. Por ejemplo, la comunicación por videollamadas fue esencial más allá de solo compartir avances académicos por correos electrónicos; el uso del WhatsApp fue indispensable para continuar el proceso de video participativo; y fue posible escuchar ponencias y congresos a los que hubiera sido imposible acudir de forma presencial. El uso de estas herramientas en línea ha complementado los procesos de enseñanza-aprendizaje, a la vez se lograron estrechar las distancias entre lugares y mantenernos en contacto pese a la cuarentena. Sin duda fueron estrategias útiles que poco a poco se fueron afinando y se logró mejorar nuestra participación en ellas, sería importante considerar continuar incluyéndolas.

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Anexos

Formato consentimiento Informado

1- Dinámica video participativo

Con los participantes se realiza una lluvia de ideas sobre lo que es el consentimiento informado, clarificando información, fines, uso y objetivos de la investigación. Se discute y se les pregunta si aceptan participar en las grabaciones de audio y video. En un papel bond cada participante va anotando su nombre y permisos según escala que deseen (Solo grabación de audio o video, información para fines académicos o para su divulgación en la página web y redes sociales del proyecto Cocina-Colaboratorio).

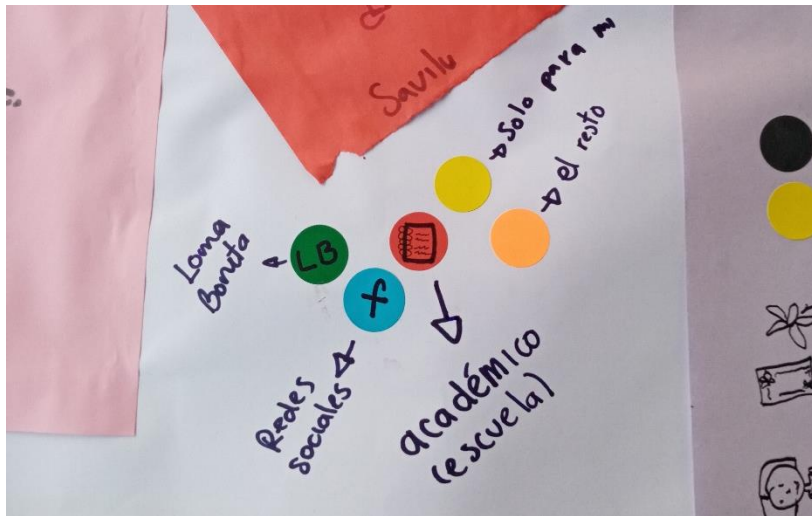
2- Guion grabación de consentimiento informado

Está siendo invitada (o) a participar en una investigación que busca conocer los valores relacionales de productores, productoras y familias respecto a parcelas y solares de Loma Bonita. La investigación es parte de mis estudios de posgrado en El Colegio de la Frontera Sur, unidad Villahermosa y se llevará a cabo en el marco del proyecto Cocina Colaboratorio. Para ello, me permito solicitar si usted acepta a participar en las grabaciones de audio y video. La información que usted proporcione a través de distintas dinámicas y conversaciones quedará registrada en una grabación de audio y será sometida a análisis. La información proporcionada y el material audiovisual resultante, será usado para fines académicos y para su divulgación en la página web y redes sociales del proyecto Cocina-Colaboratorio.

¿Usted acepta participar en las grabaciones de audio/video? ____ A continuación encenderé la grabadora de audio/video para comenzar a grabar y le repetiré la pregunta.

[El proyecto Cocina Colaboratorio (proyecto dentro del cual se enmarca la tesis) trabaja con la comunidad desde 2018 por lo que ya se tiene autorización de las autoridades locales. Asimismo, el consentimiento informado es solicitado de manera oral y grabado en audio o video puesto que la firma en un papel escrito genera desconfianza entre las personas de la comunidad.]

Consentimiento informado de la dinámica de Video Participativo



Ligas a Videos Participativos

Platillos saludables: <https://youtu.be/fcTQu2lw2GE>

Enseñanza maternal: https://youtu.be/Qv2_e-dhvp0

Entre el campo y la escuela: <https://youtu.be/ISRUiFBMd8M>

Los frutos de nuestra tierra: <https://youtu.be/aKn3dJ0A3RM?si=-WwZp6Mw0k90r5sU>

Recorridos: Parcela y Potrero: <https://youtu.be/ffiFZnXHu-Y?si=vijHVQqcXnsoDsSD>

Que vengan los pájaros: https://youtu.be/awnJviD783E?si=P3WtqI_h5mjKWNlz