

Unlearning in sustainability transitions: Insight from two Dutch community-supported agriculture farms

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ABSTRACT

The importance of double-loop learning and associated unlearning for sustainability transitions is increasingly recognised; however, a clear conceptualisation and empirical focus on unlearning is lacking. This paper combines conceptualisations of unlearning in organisation, business and management theory ('organizational unlearning') with postcolonial and feminist approaches to teaching and education ('pedagogical unlearning') to provide a richer understanding of unlearning in sustainability transitions. Empirical evidence was obtained through qualitative documentation of the conversion to solidarity payment in two Dutch community-supported agriculture (CSA) farms. Solidarity payment increases access to the CSA for low-income members and fosters solidarity with farmers to secure fairer income. Our results indicate the generative function of unlearning during processes of change as well as the strategic and pedagogical relevance of unlearning for this specific case. We conclude with the added value of an approach to sustainability transitions that is equipped for capturing the entangled processes of unlearning and learning.

1. Introduction

Various scholars have contended that sustainability transitions entail processes of transformative learning (Van Poeck and Östman, 2021; van Mierlo and Beers, 2020). In particular, double-loop learning aimed at confronting and modifying assumptions, values and beliefs that guide human action, is considered essential to transform unsustainable regime trends (Argyris and Schon, 1997; Plummer and Van Poeck, 2020). Scholars have also increasingly asked if such learning processes also involve *unlearning*—that is, discarding certain routines, practices and mental models to embrace and learn new ones. For example, van Mierlo and Beers (2020:266) proposed to 'regard learning as a process that coincides with [...] unlearning, which is most relevant in the transition process of actors changing their everyday practices'. However, whereas insightful theorisations of learning processes have been proposed in the transition scholarship, unlearning itself remains a fuzzy concept and a neglected dimension of double-loop learning.

Conceptions of learning in sustainability transitions remain predominantly associated with the emergence of novelty and the acquisition of new knowledge and skills (van Mierlo and Beers, 2020; Vetter, 2020). This is problematic because specific motivations (e.g. ethical and, broadly speaking, 'political') and actions associated with *unlearning* such as the deliberate stoppage from retrieval and reproduction of knowledge, routines and mental models in discourses and practice, are neglected. A more dialectic perspective on learning is needed to recognise sustainability transitions as entangled processes of learning and unlearning (van Mierlo and Beers,

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2020; Vetter, 2020). Therefore, untapped opportunities remain for transition scholars to better articulate and conceptualise unlearning and its relevance to sustainability transitions. Furthermore, the few studies that mention unlearning in sustainability transitions are limited to recommendations regarding *what* to unlearn for transformative change rather than elucidations of how such unlearning occurs, for example: ‘unlearning abundance’ (Alexander and Gleeson, 2018), ‘unlearning dominant paradigms for urban governance’ (Wolfram, 2019) and ‘unlearning and debunking economics’ (Røpke, 2020). Hitherto, little scholarly attention has focused on *how* processes of unlearning initiate and unfold in sustainability transitions—with the notable exception of Nygren et al. (2017), who drew on organisational theory to explore unlearning in conservation management, and Feola et al. (2021), who documented the unlearning of marginalising discourses in a peasant movement.

To address this gap, this paper sets out to conceptualise unlearning and its entanglement with learning in sustainability transitions. We integrate for the first time conceptualisations of organisational unlearning from organisation, business and management theories with Spivak’s notion of unlearning that is at the core of feminist and postcolonial research and education (Spivak, 1996; Kapoor, 2004; Andreotti, 2007). By and large, research on unlearning can be sorted in accordance with these fields’ understanding of unlearning as either a *strategy* for environmental adaptation and flexibility (e.g. Tsang and Zahra, 2008; Cegarra-Navarro and Cepeda Carrión, 2013; Hislop et al., 2014) or as a *pedagogy* to uproot and reject long held assumptions or beliefs (e.g. Spivak, 1996; Cochran-Smith, 2000; Porter, 2004).

We seek evidence for unlearning in two Dutch community-supported agriculture (CSA) farms that have converted to solidarity payment. CSA initiatives are considered important settings for learning as they offer space to explore ‘real-world’ sustainability problems and test grassroots socio-technical solutions (Kerton and Sinclair, 2010; Seyfang and Haxeltine, 2012). Solidarity payment requires members of the CSA farm to self-decide how much they want, or are able to contribute for their share of the harvest, thereby rethinking conventional payment schemes that commonly propose a single price for a product or service. Solidarity payment is predicated on the assumption that tailored membership fees improve the inclusivity of the farm beyond affluent members while simultaneously providing farmers with a fair wage (Forbes and Harmon, 2008; Paul, 2019; Hageraats, 2021). ‘Solidarity’ also implies altered relations between consumers and producers, who do not collaborate at a distance but as members of the same community who redistribute risk and rewards (Brunori et al., 2011). Thus, solidarity payment has the potential to encourage a reflection on collaboration at the farm, farm values and the inclusivity and economic viability of agroecological farming. As a case study of a changing producer-consumer collaboration in agriculture, this paper offers an in-depth empirical investigation into the entangled processes of learning and unlearning that manifested within the selected CSA farms as they converted to solidarity payment.

2. Sustainability transitions, double-loop learning and unlearning

In this section we elaborate on the important distinction in sustainability transitions research between single and double-loop learning stemming from Argyris and Schön’s (1978) theory on organisational learning. According to this theory, learning starts with the detection of error that is defined as ‘the mismatch of outcomes to expectations, that triggers awareness of a problematic situation and sets in motion the enquiry aimed at correcting the error’ (31). Learning is qualified as double-loop when it encourages the learner to question and modify the frames of reference behind his or her actions and thinking—rather than the adaptation or ‘error correction’ of such frames (i.e. single-loop learning) (Argyris and Schön, 1997; Kemp et al., 1998; Goyal and Howlett, 2020).

Transition scholars consider double-loop learning to be of key importance to sustainability transitions as it opens up possibilities for challenging the unsustainable status quo (van de Kerkhof and Wieczorek, 2005; Schot and Geels, 2008; van Mierlo and Beers, 2020; Van Poeck et al., 2020). In the long term, single-loop learning alone is insufficient to bring about radical change and learning processes are held to be most effective when they ‘move beyond a superficial focus on realising existing goals which do not call into question the underlying assumptions and phenomena’ (Van Poeck and Östman, 2021:157). Double-loop learning is considered a transformative learning strategy that brings about a change in sustainability issue framing and problem-solution definitions (van de Kerkhof and Wieczorek, 2005).

The often implicit assumption in the sustainability transitions literature has been that double-loop learning may be perceived as an entangled process of ‘learning’ and ‘unlearning’. For example, van Mierlo and Beers (2020) argue that a ‘learning process conducive to a transition includes developing new knowledge, routines and relations as much as doing away with the old (unlearning)’ (267). Double-loop learning is performed according to doubts about the premises of human action (e.g. certain assumptions, values and beliefs) and motivates the learner to confront and modify such premises while exploring new possibilities. Therefore, learning to act beyond the habitual suggests a process of unlearning through which the learner deliberately disengages from previously held practices and beliefs that are in the way of more sustainable arrangements (Hedberg, 1981; Akgün et al., 2007; Matsuo, 2019; Burt and Nair, 2020).

However, few scholars explicitly consider unlearning as a dimension of double-loop learning – with the exception of Visser (2017) and Stenvall et al. (2018) who situated unlearning in the interruption phase of double-loop learning, that involves ‘a breach in the continuity of experience, understanding and acting, a mismatch between actual and expected outcomes’ (Visser, 2017:35). Similarly, Matsuo (2019) concluded that unlearning inspired by critical reflection played a significant role in double-loop learning. Empirical studies of learning in sustainability transitions usually fail to examine unlearning and its function in transformative learning.

In the remainder of this section we review two distinct traditions of thinking about unlearning. First we review the concept ‘organisational unlearning’ that became established – like double-loop learning (Argyris and Schon, 1997) in management, business and organisation studies and is occasionally mobilised in sustainability transitions research (Nygren et al., 2017; van Mierlo and Beers, 2020; Feola et al., 2021). Organisational unlearning is considered a strategy aiming at increasing an organisation’s capacity and flexibility to adapt to its environment. To survive in turbulent environments, organisations must be prepared to abandon obsolete or

outdated practices and beliefs to accommodate ‘better and more appropriate ones’ (Tsang and Zahra, 2008:1438; Cegarra-Navarro and Cepeda Carrión, 2013; Hislop et al., 2014). Suboptimal organisational results can create doubt about the efficacy of established routines and these doubts initiate their unlearning, with the caveat that vested interests and a confidence in prior success formulas hinder unlearning (Burt and Nair, 2020).

Second, we examine Spivak’s notion of unlearning that is established in postcolonial and feminist research and education (Spivak, 1996; Andreotti, 2007; Kapoor, 2004), but has not informed debates on sustainability transition to date. We refer to this notion of unlearning as ‘pedagogical unlearning’. The added value of a pedagogical perspective to unlearning is that it allows us to capture the more ethically charged and, broadly speaking, ‘political’ objectives of those involved in processes of unlearning and learning, for themselves and as part of collectives devoted to sustainability transition. In addition to (i) reporting types of motivations that are typically overlooked in studies of organisational unlearning and double-loop learning as referred to in the sustainability transitions literature, a pedagogical unlearning perspective (ii) better captures the various emotions that accompany unlearning processes, such as social and emotional discomfort and (iii) considers the unlearning of subjectivities and identities as an empowering and liberating process.

2.1. Organisational unlearning

With the rise in popularity of organisational change theory, organisations are increasingly advised to become ‘unlearning organisations’. Many definitions of organisational unlearning have been proposed in the management, business and organisation literature (Hedberg, 1981; Tsang and Zahra, 2008; Zhao et al., 2013; Hislop et al., 2014; Fiol and O’Connor, 2017a; Klammer and Gueldenberg, 2018). These definitions differ in some respects; however, most align in conceptualising organisational unlearning as an a) intentional process that involves organisations b) ‘abandoning’, ‘eliminating’, ‘rejecting’, ‘discarding’, ‘giving up’ or ‘stop using’ established knowledge and practice.

To effectively cope with and learn from unpredictable environments, organisations should be capable of unlearning old routines (Becker, 2005; Akgün et al., 2007; Cegarra-Navarro and Cepeda Carrión, 2013; Fiol and O’Connor, 2017a). Organisational routines are ‘repetitive, recognizable patterns of interdependent actions, carried out by multiple actors’ (Feldman and Pentland, 2003: 95), which are recorded in the organisational memory and influence present and future actions (Tsang and Zahra, 2008; Becker, 2010). Organisational routines entail performative (i.e. skills and practices at the behavioural level) and ostensive (i.e. norms, values and beliefs at the cognitive level) aspects (Sinkula, 2002; Tsang and Zahra, 2008; Zhao et al., 2013; Fiol and O’Connor, 2017a). Organisational unlearning involves reinforcing feedback between the unlearning of those performative and ostensive aspects. As deeper beliefs are discarded, it is likely that skills and practices are also eliminated. The process can nevertheless also start from the discarding of a habitual practice, which may in turn cast doubt on previously-held beliefs and lead to the rejection of the latter.

Organisational unlearning is promoted because it facilitates strategic flexibility and supports new learning and innovation processes. Most organisational scholars agree that unlearning is an antecedent to new learning (Akgün et al., 2007; Cegarra-Navarro and Cepeda Carrión, 2013; Zhao et al., 2013; Mehrizi and Lashkarbolouki, 2016; Fiol and O’Connor, 2017a,b). Organisational unlearning typically starts with noticing failures, mistakes or problems that encourage the learner to re-examine their habitual, comfortable state of being (Cegarra-Navarro and Wensley, 2019). As such, unlearning opens up possibilities for challenging those habitual organisational routines that have become useless, dysfunctional or ineffective (Burt and Nair, 2020; Becker and Bish, 2021). What has been learned as best practice may suddenly become obsolete in dynamic and unpredictable environments (Cegarra-Navarro and Cepeda Carrión, 2013). As a consequence, the inability to unlearn routines is often considered a weakness of many organisations (Hedberg, 1981; Chandy and Tellis, 2000; Akgün et al., 2007; Klammer and Gueldenberg, 2018). Organisations tend to preserve consolidated beliefs and practices, as these are the result of large financial and emotional investments, and distrust the new (Akgün et al., 2007; Fiol and O’Connor, 2017b). Hence, organisations are usually not cognisant of the ripe time to start questioning and discarding past success formulas (Snihur, 2018; Klammer, 2021). In fact, organisations might go through a lengthy phase of denial, dismissing that there might be anything to unlearn.

Theories of unlearning suggest that organisational unlearning is triggered by some form of crisis, when ‘how we do things around here’ must change (Sinkula, 2002; Fiol and O’Connor, 2017b; Klammer and Gueldenberg, 2018; Cegarra-Navarro and Wensley, 2019). These episodic (rather than continuous) changes are often caused by environmental turbulence, but may also result from internal turmoil (Moorman and Miner, 1997; Fiol and O’Connor, 2017b). For example, Sinkula (2002) discussed three major external drivers for unlearning, namely changing customers’ preferences, competitive intensity and strategic partners’ beliefs and routines. Similarly, Mehrizi and Lashkarbolouki (2016) observed how market value reduction signals activated organisations to unlearn their troubled business models. Cegarra-Navarro and Wensley (2019) studied internal triggers for unlearning such as changes in ownership due to mergers or acquisitions, joint ventures or the removal of top-managers.

Understood as an iterative process, unlearning involves mutually reinforcing feedbacks between discarding ‘old’ routines and experimenting with ‘new’ ones (Fiol and O’Connor, 2017a; Cegarra-Navarro and Wensley, 2019). For example, Fiol and O’Connor (2017b) evinced how attempts to displace deeply embedded routines of care delivery required many rounds of discarding dysfunctional routines before new ones became more salient. However, some organisational scholars argued for a conceptual decoupling of unlearning and learning processes to anticipate the possibility that the discarding of a routine, piece of knowledge or mental model may not be followed by their replacement (Tsang and Zahra, 2008; Zahra et al., 2011; Tsang, 2017).

2.2. Pedagogical unlearning

Unlearning in sustainability transitions may not always be a strategic endeavour to survive and compete in dynamic environments, but can also be a process to seek a different, more diverse and inclusive basis for decision making. It can reflect the contrast between an emergent vision of the world and an existing one, casting an uncomfortable light on current ways of being in the world, and suggesting ways to change them through empowerment and liberation.

To grasp the pedagogical relevance of unlearning for sustainability transitions we turn to Spivak's notion of 'unlearning one's privilege' that is elaborated in feminist and postcolonial research and education (Spivak, 1996; Kapoor, 2004). These theoretical fields consider unlearning as a process in which an individual 'cast[s] a keen eye on the familiar and taken-for-granted' (Kapoor, 2004:641) and accepts that they may pose an obstacle in recognising new possibilities and perspectives. Pedagogical unlearning is understood to facilitate learning beyond the restricted scope of historical experiences and stereotypical thinking (Spivak, 1996; Brown, 1998; Kapoor, 2004; Krauss, 2019). It helps learners to detach from biased reasoning, defensive attitudes and taken-for-granted assumptions and beliefs that underpin our known and unknown behaviours (Cochran-Smith, 2000; Mavin et al., 2004). Blinded by these assumptions, one may unknowingly be complicit in maintaining existing systems of oppression (Brown, 1998; Cochran-Smith, 2000). For example, unlearning appeared to be inevitable to release normative conceptualisations of societal constructions such as gender (e.g. Mavin et al., 2004; LeMaster and Johnson, 2019) or race (e.g. Cochran-Smith, 2000; Choi, 2008) in education.

Gayatri Spivak spoke of the necessity to 'unlearn one's privilege' or to 'unlearn one's learning', which is interpreted as evaluating one's beliefs, prejudices and assumptions and understanding how they arose and became naturalised (Spivak, 1996; Porter, 2004; Kapoor, 2004). Unlearning is of particular importance to bypass previously acquired biases. When learners accept that their behaviours are driven by past experience, they can aim to reduce the influence of, and detach from past experiences to create new and less biased thinking patterns (Choi, 2008; Cirnu, 2015; Krauss, 2019). Processes of unlearning entail acknowledgement and recognition of how our past learnings have blinded us to so many other possibilities and worldviews (Spivak, 1996; Porter, 2004; Chazan and Baldwin, 2021). Unlearning can therefore help the learner to think, act and care differently (Spivak, 1996; Mavin et al., 2004; Baldacchino, 2013); to be able to 'look at things from different perspectives [...] to see the unseen, and think the unthinkable' (Hsu, 2021:7).

The pedagogical unlearning perspective has highlighted the centrality of uncomfortable reflexivity, which is neither an easy nor self-flattering exercise (Brown, 1998; Cochran-Smith, 2000; Pillow, 2003). Examinations of the self are unlikely achieved without a certain amount of pain and resistance on behalf of the (un)learner (Burksiene, 2016; Lawhon et al., 2016; Vetter, 2020). For example, Burksiene (2016) described the unlearning process as 'deeply emotional and challenging', as it brings individuals' identities into question. Likewise, Vetter (2020:20) concluded that 'breaking with previously held beliefs and practices is emotionally strenuous. It requires time and support to cope with the fears, uncertainties and vulnerabilities that are inherent to any change of practice or internal struggle over new and old knowledge.'

In the words of MacDonald (2002:172), 'the pedagogical model of unlearning guides the learner through grief and mourning, while maintaining hope in the possibilities for a new vision'. Unlearning, she argued, is a critical process of weighing prior knowledge when confronted with new ones. Moments of doubt arise when a person begins to accept the possibility that there are perspectives and viewpoints that challenge their own (Macdonald, 2002; Laineinen, 2019; Hsu, 2021). In the ongoing mix of learning and unlearning the learner gradually comes closer to 'the best version of the self' (Grisold and Kaiser, 2017:48; also see McLeod et al., 2020).

Our paper originally combines organisational and pedagogical unlearning to inform our empirical study aimed at revealing

Table 1

Synthesis of theoretical perspectives on unlearning.

Key concept	Organisational unlearning	Pedagogical unlearning
Theoretical field	Management, business and organisation	Feminist and postcolonial research and education
Relevance of unlearning	Strategic	Pedagogical
Triggers for unlearning	(Forms of) crises <ul style="list-style-type: none"> • Environmental turbulence and value reduction signs • Internal turmoil • Dysfunctional or unwanted results 	(Forms of) confrontation <ul style="list-style-type: none"> • Discomfort / unease • Judgement or retaliation
Awareness	Initial destabilisation of routines <ul style="list-style-type: none"> • Noticing failures, problems and mistakes • Questioning the efficacy of existing routines 	Critical (self-)reflection <ul style="list-style-type: none"> • Recognition of stereotypical thinking, biases, prejudices and privileges • Different ways of understanding a particular phenomenon are evaluated
Letting go and embracing alternatives	Changing routines <ul style="list-style-type: none"> • Discarding / forgetting / abandoning routines • Experimenting with new ones • Adoption of new ('better and more fitting') routines 	Changing mindset <ul style="list-style-type: none"> • Detach from or reduce influence of prior learning • Rethink or relax rigidities in prior thinking • Think, act, care differently

unlearning in sustainability transitions. In this effort, we consider unlearning as a dimension of learning in sustainability transitions. Unlearning is a process with strategic and pedagogical relevance that is activated by various triggers. It facilitates critical reflection and initial destabilisation of existing practices, values and beliefs and makes learners embark on an iterative process of releasing these existing practices, values and beliefs and embracing new ones. Table 1 summarises both theoretical perspectives on unlearning. We focus on four aspects: relevance of unlearning, triggers for unlearning, awareness creation in unlearning, and the combination of unlearning and learning in changing routines or mindset.

3. Methodology

3.1. Research approach: event structure analysis

Our research objective was to conceptualise and study unlearning in sustainability transitions. With our empirical study of community supported agriculture (CSA) farms converting to solidarity payment we aim to create a better understanding of unlearning in agricultural transitions towards more sustainable and inclusive forms of collaboration in farming. This paper uses a qualitative method that is apt for studying socio-historic processes, namely event structure analysis (ESA) (Griffin and Korstad, 1998; Stevenson and Greenberg, 1998; Heise, 1988; Griffin, 2007). ESA's basic purpose is 'to aid the analyst in "unpacking an event"—that is, in breaking it into constituent parts—and analytically reconstituting it as a causal interpretation of what happened and why it happened as it did' (Griffin and Korstad, 1998:145). Essentially, ESA is a 'heuristic aid' that helps the researchers to narrate the unfolding of complex and messy socio-historic processes (Heise, 1988). Following Feola et al. (2021), we consider ESA well suited to study processes of change—specifically constructive (learning) and deconstructive (unlearning) processes encouraging the researcher to make them more tangible and traceable.

3.2. Case study: solidarity payment in community supported agriculture (CSA)

This paper focuses on conversion to solidarity payment in two Dutch community supported agriculture (CSA) farms. The CSA model encourages direct relationships between one or more farmers and a community of members around local food. Members pay a yearly advance fee in return for a share of the harvest (Cone and Myhre, 2000; Paul, 2019). Such upfront provision of the operating budget provides farmers with a guaranteed market for their produce and a secure income stream, thereby providing an opportunity to reduce their reliance on financial institutions and external funding (Paul, 2019). In practice, many CSA farmers are not earning sufficient income to ensure a living wage (Paul, 2019; Hageraats, 2021). For example, Flora and Bregendahl (2012) found that despite many farmers choosing to engage in CSA for reasons associated with financial capital, financial advantages actually ranked last amongst actual benefits received. Moreover, Paul (2019) concluded that CSA improved the reliability of earnings but failed to provide an adequate income to farmers: 81% of the CSA farmers were unable to secure a living wage from full-time farming, which 'fuel concerns that the CSA model may fail to adequately compensate farmers' (Paul, 2019:166).

With solidarity payment, the amount that members contribute to compensate for work on the farm is based on solidarity with the farmer and amongst members. Rather than predetermining a fixed price, members of the CSA decide themselves how much they wish to contribute to compensate for the work. Solidarity payment is introduced to provide farmers with an adequate income to secure a living wage while also mitigating economic barriers for low-income households by allowing varied prices per share that match members' economic or social situation (Guthman, 2008; Galt et al., 2017; White et al., 2018)

The two studied CSA farms in the Netherlands are frontrunners in implementing solidarity payment. To preserve anonymity, we refer to these CSA farms as the *Orange farm* and the *Yellow farm*. The *Orange farm* is a self-harvest CSA with approximately 100 members who use a 'price-scale' or 'sliding-scale' mechanism as a form of solidarity payment. Members are presented with a range of contribution fees (between €225 and €345 in 2021) that translate into farmers' gross hourly wage. The *Yellow farm* works with box-schemes and distributes 90 boxes of various sizes per week, which can either be collected on the farm or at the city centre. A simple formula—i. e. labour per box * gross hourly wage * 25 weeks (average duration of the harvest season in the Netherlands)—is used to inform members about the necessary work to prepare small (0.5 h), medium (1 h), large (1.5 h) or extra-large (2 h) boxes. Members subsequently decide on the farmers' gross hourly wage and thus their financial contribution to the farm for that year.

At the time of this study (Spring/Summer 2021), both farms had fully incorporated solidarity payment, thereby enabling us to trace the unfolding of the historical 'event' (Griffin, 1993) (i.e. the conversion to solidarity payment) in retrospect. The beginning of the event was subsequently deduced to the first moment the farmers started to question traditional payment schemes and consider solidarity payment. The end of the event was the consolidation of the solidarity payment scheme within the CSA initiatives.

3.3. Data collection

To create a rich narrative account of the conversion to solidarity payment, we collected data per farm through farm visits, online and offline interviews, farm websites and sign-up sheets, public events and newspaper articles. A total of 33 semi-structured interviews were conducted with farmers (F1–F4) and members (M3–M31) of both farms. The first author continued interviewing until confident of i) what actions were important in constituting the conversion per farm and ii) how these actions link (Griffin, 2007). She regularly visited the farms in June and July 2021 to directly approach members who came to collect their boxes or harvest their produce. To compensate the farmers and show support for the CSA initiative, the lead author of this paper regularly helped out on the farm.

The semi-structured interviews were used to elicit each respondent's narrative. Respondents were asked to describe their personal

account of the farm converting from conventional to solidarity payment and subsequent changes in as much detail as possible. We embraced ESA's probing spirit to 'evoke imaginative reconstruction of the actor's world and her/his motives, strategies and understandings' (Griffin and Korstad, 1998:146). We asked respondents to share their experience with solidarity payment and recall moments of e.g. confrontation, conflict or surprise and whether any practices, assumptions or beliefs were challenged or abandoned. On average, the interviews lasted 40 min but ranged from short talks of 12 min to long discussions of almost 90 min. All interviews were transcribed verbatim in Dutch, which was the participants' native language.

3.4. Data analysis

To analyse the farms' conversion to solidarity payment, we first prepared a chronology of the actions that the first author determined had defined the event. This chronology was based on the combined data from our interviews, in which the respondents were asked about key moments in the conversion to solidarity payment. Following Griffin (1993; 2007), we formulated short, tightly-sequenced descriptive statements focusing on the actor(s) and the social action, e.g. 'farmer sends out letter', maintaining an active voice throughout the chronology. The chronology was then entered as input into ETHNO,¹ an online software programme that presented us with a series of yes/no questions about the causal connections between the various actions constituting the event (Stevenson et al., 2003; Griffin, 2007). For each action, the analyst is asked if a temporal antecedent is *required* for the occurrence of the subsequent action. If 'yes', then ETHNO links the actions indicating a logical relation. If the relation between two events was not directly clear, then counterfactual questions were asked (Griffin, 1993). Subsequently, ETHNO used our responses to create the event sequence charts representing the analyst's interpretation of the causal—rather than temporal—connections amongst the actions constituting the farms' conversion to solidarity payment. Finally, the research team checked the charts for logical inconsistencies. Both charts begin with farmers questioning the old payment scheme (beginning of the 'event') and end with the consolidation of solidarity payment (end point the 'event'). We studied the actions and the logical relations between causally related actions in the charts through our unlearning perspective. Table 1 helped to reveal unlearning in particular moments and actions in the conversion to solidarity payment. Fig. 1 gives a schematic overview of the subsequent steps in our research approach.

4. Results

This section presents the analysis of the two selected CSA farms converting to solidarity payment, highlighting unlearning therein.

4.1. Yellow farm

4.1.1. Implementation of the solidarity payment scheme

The Yellow farm is owned by a female farmer, who employs another female farmer. Together with a contracted host/shop-assistant and a fluctuating group of volunteers and interns, they run the CSA and on-farm shop. The Yellow farm operates via box-schemes. During the harvest season, a total of 90 boxes of various sizes are distributed to the members of the farm. The prices of the boxes varied according to their size and were determined by the farmer based on benchmarking of organic supermarket prices and other CSA farms in the area. In 2020, the farmers of the Yellow farm implemented a form of solidarity payment: the hour-per-box solution (F1).

The narrative of the Yellow farm and the farm's conversion to solidarity payment highlights income deficiencies. Both farmers of the Yellow farm (F1, F2) cited self-exploitation at the farm as a common drawback of agroecological farming.² The injustice of working long days for little financial compensation and the fact that no one voiced this problem particularly frustrated the contracted farmer:

I saw the owner of the farm working 60 h per week, completely exhausted. She is also a mother and runs a household. There are no funds to hire another farmer. This is when I realised, we cannot go on like this. It is absurd. It is not about getting rich, but about not having the money to share the work on the farm, to build up a pension, to pay for insurance etc. (F1)

Feelings of discomfort were additionally fuelled when both farmers began comparing their incomes to those of their friends, family and colleagues (F1, F2).

It just didn't feel right anymore. I am producing food, working long hours—physically hard work [...] for our members who definitely earn a minimum wage. Whereas, at that time, we [the farmers at the Yellow farm] earned half the minimum wage. (F1)

These realisations led the contracted farmer to develop the 'hour-per-box' solution. The farmers had considered self-harvest as a solution to minimise labour and thus increase their income; however, they promptly abandoned this option for multiple reasons, including the need to reorganise the farm design and the loss of farmers' joy of harvesting that this solution would have caused (F2).

The hour-per-box solution, wherein members determine the gross hourly wage to compensate for the work that goes into preparing a small, medium, large or extra-large box, was first rejected by the farm's owner. What drove the owner's reluctance to institute this form of solidarity payment was a general fear to raise prices and uncertainty as to how members would respond to the increase and its implied message (F1, F2).

¹ Link to ETHNO <https://cs.uwaterloo.ca/~jhoey/research/ACTBackup/ESA/ESA.html>

² Many researchers use the term 'self-exploitation' to describe this phenomenon and to illustrate the fact that CSAs rely to a large extent on the work that farmers perform to sustain them (e.g. Hinrichs 2000; Galt et al. 2017; Bruce and Som Castellano 2017; Mundler and Jean-Gagnon 2020).

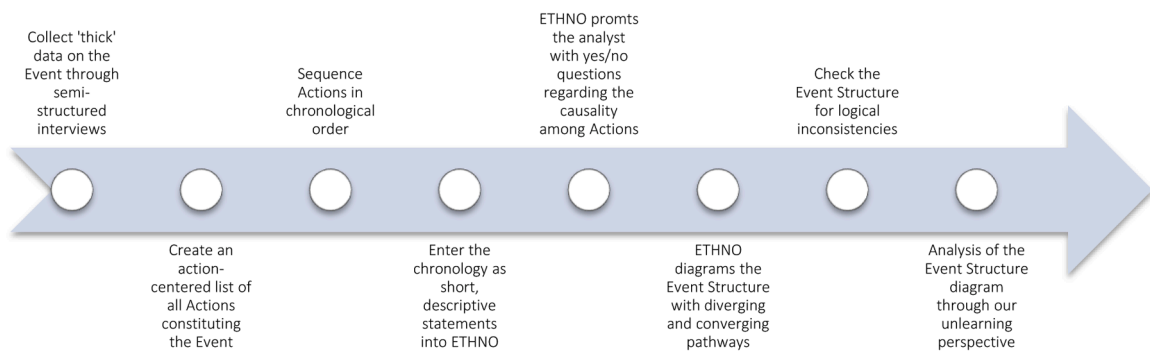


Fig. 1. Schematic overview of event structure analysis using ETHNO.

I was nervous to implement [the solidarity payment scheme]. Over the years, I built a good relationship with my members, and I was quite afraid they would not accept our proposal. Or that they would feel bad if I showed them how little I earned. [...] I was reluctant to tell them. (F2)

Nevertheless, the owner of the farm agreed to a pilot phase for the hour-per-box solution. This meant that all members received a form and sign-up sheet for solidarity payment in their box but were not obliged to join (F1, F2). In addition, the issue of fair wages and the proposed solution was more intensively communicated to community members on the website, the newsletter and social media, and during on-farm discussions.

So I do tell them regularly about fair income. And I ask: it would be nice if the gross hourly wage you give us is based on your own gross hourly wage. Solidarity with the farmer, but also with each other. To make organic food accessible to everyone. Suppose you are a single mother and you earn very little. It is fine if she contributes 5 euro per hour, because that is then hopefully balanced by others who give me 30 euro per hour – so to say. (F1)

I think it is generally considered 'not done' to discuss how much you earn, especially if you not earning a lot. (F1)

During the pilot year, only a handful of members joined the initiative, and the majority did not return the form (F1, F2). Although members' willingness to support solidarity payment in the pilot phase was unsatisfyingly low, both farmers were set on continuing the experiment, as they had grown to accept communal responsibility in assuring fair wages (F1, F2).

The next year, all members again received an instructive letter and sign-up sheet; however, this time, they were obliged to join the solidarity payment scheme. The owner of the farm provided the following reason for the decision:

If we really want to work with the new payment scheme, we have to take a stand and push it through. I do not want to lose the people that I work with, but if I want to offer them a proper wage, more money needs to come in. (F2)

The overall response to the new payment scheme was positive, and only a few members left the farm (F2). The majority of the members (about 80%) completed the form and decided on a gross hourly wage for the farmers (F2). The farmers provided supporting information with an explanation of the financial situation of the Yellow farm and instructions on how to decide on a righteous financial contribution. For example, they advised to take into account their own gross hourly wage and the national minimum wage of €16 per hour. One member shared the following thought:

We decided immediately that we would pay the minimum wage. I think that is only reasonable, to receive a decent salary for your work. (M15)

Different reasons were cited for not responding to the letter. Some did not respond to indicate that they agreed with the national standard of €16 per hour (M7, M8, M16), as the farmers had explained in the letter that if they did not receive any reaction to the form, then members would automatically end up at that payment level. Other members simply forgot (F2, M4, M8):

I did not respond to the letter, waiting to see how it would turn out. I was a bit sceptical. I thought I just see what comes out, and I am happy to pay whatever they need. I mean you can't get involved in everything of course. I just decided to watch it unfold from a distance. (M7)

Solidarity payment was fully in place in 2021, and members were invited to reconsider their contribution for the upcoming harvest year.

4.1.2. Revealing unlearning and learning

The initial destabilisation of payment routines at the Yellow farm started at the level of the farmers. Both farmers voiced their feelings of frustration and disappointment regarding their financial position. The realisation that most of the CSA farmers in the Netherlands are positioned in a frugal economic position provoked the farm's owner to act on these feelings (F1). She began to openly discuss her financial position and call out the CSA model for failing to provide farmers with an adequate living wage. The farmer

critically reflected on why CSA farmers are afraid to increase prices and value their products to ensure a living wage. This critical reflection on habitual practices and informal rules in the larger CSA farming community led her to develop the hour-per-box solution, wherein members of the Yellow farm compensate farmers for their labour rather than pay for the food.

Initially, the farm's owner was reluctant to implement solidarity payment at the farm. She had reservations about members' ability to comprehend the problematic situation of the farm's payment structures. The farmer mostly feared that her members would be confused by the news that their previous behaviour was unsatisfactory, which might provoke feelings of guilt and frustration. Her assessment that most members were actually unaware of the limitations of prevailing payment routines seemed to hold true: during conversations with the farm's members, most said they were surprised to hear about farmers' precarious financial position (M3 – M6, M8, M13–M16). As one of the farmers mentioned:

Often, members react shocked and they say: good that you are doing something about it, and that you are working towards a better future. Of course we want to support you, we just didn't know. We had no idea. (F1)

Similarly, one of the members commented:

Of course you see them work hard and working long hours. And I saw the love and care that [the farmers] put in the garden. A bit of an elephant in the room I guess [...] But as long as they do not mention it. I figured they must really enjoyed their work, or perhaps they received subsidies? I just never [...]. (M8)

The members' ignorance stems from reliance on the CSA model and assumptions related to direct marketing, which implies that members' contributions cover farms' operation costs. Bringing habitual practices and knowledge regarding CSA and associated payment schemes into the realm of enquiry was an important step to provoke changes on the farm. The farmers decided to be more transparent about their marginal financial position, information that they had previously withheld from their members (F1). In addition, the letter that was sent to the members not only explained how the current price insufficiently compensated for the work on the farm, it also underlined the shortcomings of a payment scheme that prices the product rather than the labour that goes into producing the boxes. The farmer explained that the hour-per-box solution was designed to provoke discussions around value and labour. The form posed the question: *what is the gross hourly wage you would like to pay us?*

In the farmer's words:

What is interesting is that they have to fill it in themselves. Some people might have little to spend and will say: I don't have much so I can only pay a small fee. Members want us to decide for them. But if I ask them: what should be our hourly wage? What do you want to pay—and really anything is fine. Then they have to actively think about us. We want people to reflect on what does it mean to have little income, and how does that compare to our income [the farmers]? (F1)

Most of the reflections on their membership were observed after the members received the letter. As shown in the narrative, the majority of the members answered the question posed by the farmers; however, the extent to which they interacted with the question differed. We recognised unlearning in the stories of members who used the request for solidarity payment to, for example, re-consider priorities in their expenditures (M8, M10, M18), contemplate the different types of values provided by the farm (M4), or compare their own financial position against that of the farmers (M3, M13, M17) and other community members (M6, M9). Overall, these members perceived the question as difficult or challenging but appreciated the invitation to join the discussion. They also appreciated that the open question allowed low-income families to join the scheme (M4, M6, M8, M9, M13):

As I understand it, it is a completely different approach to compensation, it is about how you value the farm. (M4)

What I appreciate, or what I consider one of the strong points [of this initiative] is that members can decide. They give us a sense of 'you can really contribute in this way'. In that way, my contribution becomes more than only paying for farm produce. (M8)

In contrast, other members explained that they adhered to the farmers' instructions to consider the national minimum wage of €16 per hour (M5, M6, M12, M15). They came to understand that the average price of the box needs to increase for the farmers to earn a fair wage. In deciding, these members less frequently considered their role as community members. Rather, they seemed to automatically agree with the new, recommended price. In these cases, when confronted with a problematic situation, members were actually very willing to accept a new payment scheme, but did not express that it changed their perception of prevailing farm routines. They suggested that the farmers should have simply increased the price per share (M5, M12, M15).

Not all members appreciated the farmers' attempt to have them take communal responsibility for fair wages (M3, M7). Some members shared their discomfort with deciding someone else's salary (e.g. *Imagine going to the hairdressers and being asked what do you earn? [laughs]—M3*) or their lack of knowledge to make a proper decision (M7). In addition, some members suggested that farmers should be more entrepreneurial (M5, M7, M16):

What reference do you have as consumer to determine what [the farm] is worth? In my opinion, it is too difficult to really determine value. I just pay the new price for the box—I do not have enough information to make another decision, so I'll just leave it like this. (M7)

For these members, the issue at hand might be understood; however, the solution of solidarity payment was not appreciated. Rather, they believed that the financial situation could be solved with the help of existing habits and within prevailing responsibilities—that is, the farmer should have simply increased the price per box. In these cases, there is no evidence of enquiry or deliberate rejection of previous practices.

After deciding, some members continued to tinker with the idea of solidarity payment: for example, we noticed a readiness to

embrace more diverse community roles (M3, M4, M8, M9, M12). However, discomfort with solidarity payment remained. The lack of feedback on the decided gross hourly wage gave members a sense of unease (M4, M5, M15, M16). For example, when expressing his worries, one member shared: *I do not want to take advantage of the farm* (M5). Finally, members also critically reflected on the willingness of others to engage in solidarity payment (M4, M8). The decision on the financial contribution was made at the individual or household level. At the community level, these considerations were not discussed, and they did not play a role in shaping the process. As one member shared:

Imagine: what if everyone is only prepared to give 100 euro? It is a risky move—especially if you want to earn a living wage. (M4)

4.2. Orange farm

4.2.1. Implementation of the solidarity payment scheme

The Orange farm is a young, self-harvest CSA farm run by two female farmers. They recently relocated the farm to another plot in close vicinity to their previous plot. The farmers decided to move from their original plot after two years due to their discontent with the relationship with the owner of that land and their longing for more autonomy (F3, F4). The farmers formed a land working group with some members of the Orange farm to support their venture for new land. Concurrently, the farmers were approached by another farmer who welcomed the Orange farm on his property (F3, F4). As a result, several volunteers left the land working group because they assumed that it had served its purpose (F3, F4, M31). A slimmed down version of the land working group continued to discuss commons and shared ownership of the land, topics that were always at the group's heart (F4). In the new situation, the land is still owned by an external actor, albeit with more freedom for both farmers. The farmers expressed a strong conviction that such dependency is unsustainable and unjust in the long-term. They envisaged a future in which the land would be repurposed as a commons (F3, M31). This philosophy of *community shared agriculture* (F3) seeped through respondents' accounts of the farm's conversion to solidarity payment.

The first harvest season on the recently acquired plot coincided with the beginning of solidarity payment at the Orange farm. From the onset of the move in 2019, the farmers had discussions about a fair wage but acknowledged the complexities of operating in a conservative region as well as raising prices without excluding low-income households (F3, F4). The farmers were further inspired by the experiences of the Yellow farm (see Section 4.1) to actively address the issue of low wages at their own farm (F3).

The Orange farm holds annual meetings at the end of each harvest season. During the first annual meeting, the farmers presented their budget and annual reports (F3, F4, M20, M21, M24) to show that they were far from able to earn a living wage (F3, F4). Subsequently, farmers encouraged members to contribute more, although no formal scheme for solidarity payment was introduced during this meeting (F3, M24, M26). However, spurred by these initial group dialogues on income, the farmers determined that their financial position should become a communal responsibility (F3, F4) and drafted a proposal for compulsory solidarity payment (F4). Ahead of the second annual meeting in 2020, the farmers informed all members about the solidarity payment via their newsletter. In doing so, they stressed the importance of finding a solution that fitted their community. For example, an excerpt of the information letter stated:

As you can see in the budget, [the Orange farm] is not yet financially healthy, which is why we are looking for ways to improve the balance sheet for next year. Importantly, we do not want to make any concessions to the way we work and approach agriculture. We learn a lot from other farmers, but there is no fixed guideline for the reimbursement of costs yet, which is why we want to look for possibilities together with you. [...] How can we organise CSA in such a way that the costs are covered but remain accessible to those with a smaller budget? We want solidarity and therefore invite you to join us in looking for a farm that suits us all.

In addition to the solidarity payment, the farmers also initiated a working group to attract new members, which would further improve the financial position of the Orange farm (F3, F4, M25, M30). During the meeting, ideas for recruitment were discussed, and a target number was set (F3, M30).

During the second annual meeting, the topic of solidarity payment was heavily discussed (F3, M22 – M27, M31). The farmers' initial proposal was *to start an online bidding round [bieterunde] for members that continues until total costs of farming operations are covered (from information sheet)*. Amongst the reasons that the members rejected the *bieterunde* was that they feared competition and a lack of anonymity amongst themselves (F4, M22, M24, M31). In addition, most members deemed freely deciding on an amount without any guidance to be too complex (F3).

After processing the responses from the second annual meeting, the farmers decided to implement a sliding scale for solidarity payment (F3, F4, M25, M27). This approach was considered the best solution to balance members' request for the farmers' guidance with the farmers' vision for shared financial responsibility: the sliding scale was regarded as a *compromise* (F3). About 10 percent of the members left the farm in response to these allegedly complex discussions on income (F4, M25). All remaining members had to renew their membership for the next harvest season by filling out a subscription form, including the sliding scale (F3, F4, M30). The sliding scale is a tool that helped members consider an appropriate contribution for the harvest season ranging from €225–€345 per adult share (numbers from 2021). The sliding scale and subsequent information on its interpretation were updated throughout the year (F4, M22). Amongst other things, a separate webpage was developed to inform old and new members about the payment scheme.

4.2.2. Revealing unlearning and learning

Similarly to the Yellow farm, the farmers from the Orange farm were also set on confronting unjust farm structures that financially marginalised them. Their transparent and honest communication about farm finances via newsletters and annual meetings was part of that strategy (F3, F4). Their annual reports included extensive Excel spreadsheets with detailed information on financial flows and

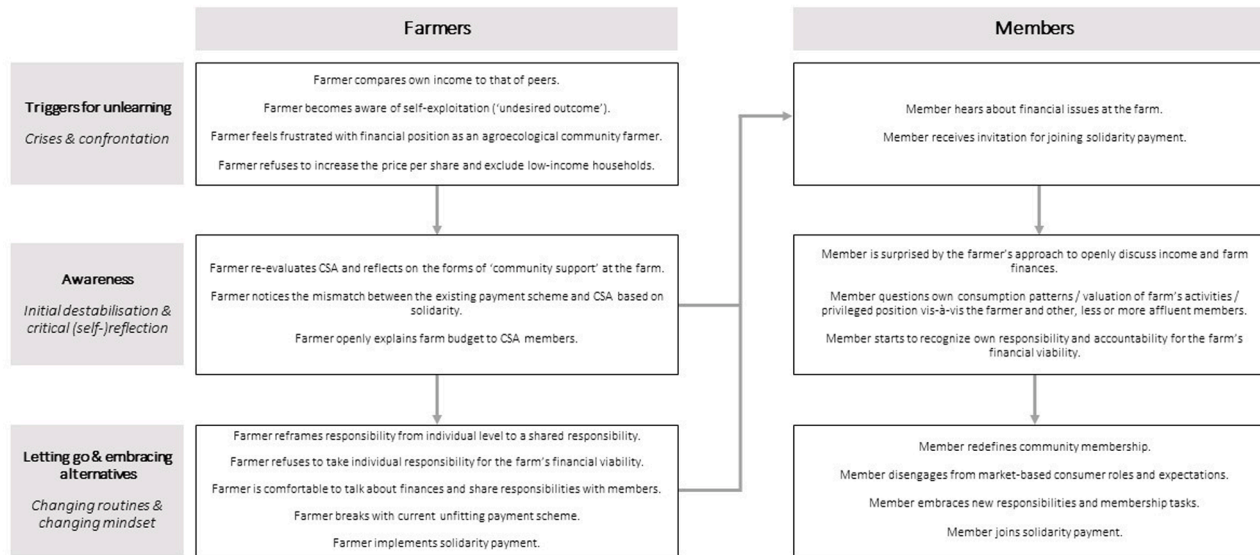


Fig. 2. Schematic overview of selected actions from ESA analysis which contribute to revealing the conversion to solidarity payment as an entangled process of learning and unlearning for both farmers and members.

subsequent hourly wages for both farmers (F3, F4, M20, M21, M24, M27). Open communication brought forth feelings of discomfort and unease not only for members, but also for the farmers themselves:

People were really shocked to see [...] 'Why are you showing this?! You are the entrepreneur, why do I need to look at this?!' They were actually quite upset [laughs] [...] but all we just wanted was to show our inputs and outputs. We did not even ask any confronting questions back then. (F3)

After the first year, we drafted a budget. And then we noticed that the price had to increase to three or actually four hundred euros. I remember thinking: that's crazy! And impossible because not everyone can afford that. (F4)

The latter excerpt exposes the farmer's internal struggle between what is necessary for a sustainable continuation of the CSA farm and the prices deemed appropriate through the eyes of community members. One of the farmers described members' incomprehension as an *incredibly painful experience* (F3). It took time and supportive dialogue for them to acknowledge this pain (F3, F4). Indeed, although this source of both members' and farmers' discomfort was not easily uprooted, it seemed essential to understand adverse reactions to develop workable solutions.

After the second harvest year, the farmers returned to the community with another annual report (F3, F4). In addition to presenting the latest financial overview, the report also included a detailed plan for solidarity payment at the Orange farm, which included several tools to aid members in considering their financial contribution of the farm. First, the farmers listed a set of questions to be considered when deciding on an appropriate membership fee. For example, they proposed that members consider: What you would like to contribute per week? What is your own gross hourly wage? What do you pay in the organic supermarket? Secondly, the farmers articulated for *what* members were paying the Orange farm. Here, the farmers directly confronted the members with questions about societal value and worth. These questions helped members to accept that they were no longer paying for a product through a direct market relation; rather, they needed to consider how much they valued the overall CSA initiative (M23, M26, M27, M31):

So rather than asking: how much should our vegetables costs? We ask: what is this the worth of this total package of services? How much is it worth to you? And the big question: who reimburses the costs? [Orange Farm annual report]

As described in our narrative of the Orange farm, the farmers initially proposed to work via an online, anonymous bidding round or *bieterunde*, a form of solidarity payment that has gained traction in German CSAs (F3,F4). The idea was that members would individually or within their households decide on an appropriate contribution. The farmers would repeat the bidding round until the costs of farming operations were covered (F3, F4). This suggestion caused resistance during the second annual meeting, and there was a general desire for more guidance (F3, F4, M22, M24, M27, M28). Loyal to the vision of solidarity payment, a sliding scale was proposed as an alternative to the *bieterunde*. What endured was the farmers' motivation for members to start recognising communal responsibility, and to transform centralised decision-making within CSAs:

We wanted to create awareness about the importance of solidarity payment. It was really important to us that members decide for themselves. [...] It is based on trust; we did not verify the choices they made. (F4)

Most members reported that the meeting and/or the prepared documents for that meeting made them more mindful of the farmers' precarious financial position and the true price of agroecological farming (M20, M22-M27, M31):

We were confronted with the actual costs of not wanting to cause certain environmental problems. The question of compensation had become a moral issue. (M23)

I remember sharing my concerns with [the farmer]. Each time I came to harvest my produce [...] she was always there! And by then I was paying 180 euro per year. That couldn't make sense. So the meeting, I guess it was more of a confirmation: I was right, it does not make sense. (M26)

Whilst some members found the farmers too vulnerable (M21, M29), most started to question and critically reflect on internalised ideas about their membership. For example one member shared that he started to recognise new responsibilities:

Most importantly, I realised that the farmers' income directly depended on what we paid. We compensate labour, and do not just pay for the vegetables. That idea really appealed to me. If I want the farmers to have a reasonable income, I can decide that. (M23)

All members of the Orange farm needed to complete the sign-up form, thereby indicating how much they were willing to contribute for the next harvest season. Members interacted differently with the sliding scale: some opted for the average, whereas others actively considered farmers' guidelines (M28, M30). Some members shared their reluctance to consider their own hourly wage (M23, M27) or reflect on questions of worth (M24, M26):

I just considered an appropriate position for myself within the provided range. I do think I felt discouraged to consider: what is the farm worth to me? So maybe I went for the easy option [laughs]. It is interesting that I still feel uncomfortable to answer that question. (M24)

Suppose we do not reach a certain number of necessary members to cover the costs, but you strongly believe [the farmers] should earn a reasonable salary. What will you do? At what point do you decide: this is getting to much for me? That seems like a terrible decision. [...] I already noticed a resistance to calculate what I actually earn. I don't want to know that at all. (M23)

Based on the analysis of the Yellow and Orange farm we conclude our results section with a schematic overview of the conversion to solidarity payment. Fig. 2 organises the defined actions, as identified via ESA, in accordance with the aspects of unlearning (Table 1).

Fig. 2 shows that we recognise the conversion to solidarity payment as an entangled and ongoing process of learning and unlearning, in which farmers were able to reframe responsibility for farm financial health and members were able to redefine their membership and community engagement.

5. Discussion

This section summarises and discusses the main results, with reference to our synthesis table that served as the basis for empirical enquiry (see Table 1). First, we present a discussion on the observed relevance of unlearning in our case studies and secondly, we reflect on our processual understanding of unlearning and learning.

5.1. The relevance of unlearning in the two case studies

As elucidated in Section 2, unlearning in sustainability transitions can be understood as a process with both strategic and pedagogical relevance for double-loop learning. Here, we reflect on our conceptualisation of unlearning in sustainability transitions that builds on business and management theory (organisational unlearning) along with postcolonial and feminist approaches to teaching and education (pedagogical unlearning).

Inspired by research on organisational unlearning, we found that unlearning had a *strategic* function in embracing solidarity payment. In both cases, the farmers proposed solidarity payment with the assumption that present routines had put them in a precarious position, and changes were required to sustain the farm without compromising on their agroecological approach to farming. Communal acceptance of solidarity payment through a planned detachment from the unfitting market-based payment scheme ensured a better income for farmers and improved the farm's inclusivity. In this sense, our results confirm propositions from organisational theory on the importance of unlearning in producing change and transforming organisational routines to confront dysfunctional or undesired outcomes (Sinkula, 2002; Becker, 2005).

Bringing in theories of pedagogical unlearning, we also observed the *pedagogical relevance* of unlearning in our cases. Our findings demonstrate unlearning as a process in which both farmers and members scrutinised and rejected taken-for-granted assumptions regarding CSA and farm structures, which helped to embrace new forms of collaboration. For example, we documented farmers' liberation from their internalised oppressions in pursuing a fair income and illuminated how they abstained from a discursive emphasis on the non-monetary benefits of farming to justify low income and self-exploitation. As depicted in Fig. 2, the farmers were able to reframe responsibility from the individual level to a shared responsibility. Additionally, our findings demonstrate how community members were provoked to suspend their beliefs on consumer roles and responsibilities within the CSA initiative and encouraged to 'think, act and care differently' (Spivak, 1996) as they learned about farm finances and considered solidarity payment. Both observations on unlearning are in line with Spivak's prescription to trace the history of one's learnings and understand how they became naturalised and create a bias towards accustomed practices and beliefs (Spivak, 1996; Choi, 2008; Kapoor, 2004). Had this study been informed by organisational unlearning alone, the ethical basis for unlearning producer-consumer relations via solidarity payment would have been less visible. Subsequently, the pedagogical perspective to unlearning helped recognise how certain market biases and privileges such as passive consumer roles, and farmers' internalised oppressions (unknowingly) persist in CSA, that are worth exposing through an unlearning perspective. Our account of these cases would have misread unlearning as having merely a strategic function (economic viability) in the conversion to solidarity payment, while for the farmers and other members of the CSA the unlearning process was pedagogical, involving a reflection on e.g. fairness, dignity and inclusivity, as well as strategic.

To conclude: the integration of theorisations on unlearning by both organisational and business scholars, as well as feminist and postcolonial scholars allowed us to grasp unlearning in its strategic and pedagogical relevance for this specific case, and thereby reached a more comprehensive understanding of changing producer-consumer relations in agriculture.

5.2. The processual character of unlearning in sustainability transitions

This paper conceptualised unlearning in sustainability transitions as a dimension of learning in sustainability transition, with strategic and pedagogical relevance. Unlearning is activated by various triggers, facilitates critical reflection and initial destabilisation of existing practices, values and beliefs and makes learners embark on an iterative process of releasing these practices, values and beliefs and embracing new ones. Focussing on different aspects of unlearning, as deduced from abovementioned literatures, enabled us to recognise unlearning in the selected case studies.

5.2.1. Triggers of unlearning and awareness creation

Our results reveal that farmers first unlearned and subsequently guided their members' unlearning (Fig. 2, arrow from farmers to members). Whereas the farmers were initially triggered by suboptimal annual results and growing discomfort with the CSA model's inability to provide them with a living wage, members' unlearning was mostly facilitated by farmers' activation. At both farms, the implementation of solidarity payment was designed in such a way to initiate critical reflections about community membership and producer-consumer relations in CSA. This is in line with theorisations on unlearning that consider managers and teachers as important instigators of the unlearning process (Choi, 2008; Le Master and Johnson, 2019; Klammer, 2021). By openly sharing and explaining the farm budget, farmers were determined to make their rationale for changing payment structures – and with that the rationale to break with current payment routines – understood and felt by all members, and the mission for a fair income while safeguarding inclusivity of the farm was repeatedly explained to community members.

In both cases, the farmers evidently guided their members' learning and unlearning. Most members were hesitant to reconsider payment structures on their own accord. For example, hardly any members joined the pilot phase for solidarity payment at the Yellow farm, and members of the Orange farm were unpleasantly surprised when the farmers proposed to work via a bidding round and appeared hesitant to join such activity. We observe how members were initially unaware or in denial about the outdatedness and inappropriateness of the old payment scheme. Although some members already had suspicions about the old prices being too low, no objections to existing routines were raised. Not until members were confronted with the task to decide on a fair compensation themselves did they begin to rethink the farms' payment schemes. This finding aligns with earlier work positing that individuals might not be aware of the right time to unlearn or even go through a lengthy phase of denial—which further suggests the importance of having 'unlearning facilitators' (Snihur, 2018; Klammer, 2021).

With solidarity payment, members were confronted with delicate questions such as: 'What is your own wage, and what do you think a farmer should earn per hour?' Most members who fiddled with these question agreed that the invitation for solidarity payment definitely helped to create awareness about the outdatedness of the old payment scheme and encouraged a more engaged membership. Although at first surprised, most members actually enjoyed the invitation to decide on their financial compensation. In these initial moments of surprise, we registered diverse emotional responses, including frustration, irritation, discomfort, embarrassment and empowerment.

Examining these early phases of the conversion to solidarity payment, we propose that one should not expect unlearning in sustainability transitions to spontaneously emerge. Our results show that unlearning takes deliberate effort and time and is dependent on 'unlearning facilitators'. Initial unlearning by farmers is largely in line with organisational theory that proposed unlearning is triggered by some form of crises and a mismatch between outcomes and expectations (Fiol and O'Connor, 2017a). In turn, most members commenced unlearning at farmers' instructions, through a confrontation that was deliberately staged by the farmers. The way that members became aware of new perspectives on membership is in line with pedagogical views on unlearning. For example, and besides familiarising members with farm finances and disappointing turn overs, members were alerted to their privileged position as consumers in a communal farm.

5.2.2. Letting go and embracing alternatives

This study additionally documented unlearning and learning in the actions of farmers and members, who were rethinking and discarding practices and beliefs as well as adopting new routines and changing their mindsets. In rethinking payment structures at the farm, the farmers of both cases felt increasingly more comfortable to demand a fair income. Convinced that the CSA model necessitates shared responsibility, with farmers no longer taking on all risks, the poor financial health of the farm was no longer understood as an entrepreneurial failure at the individual level but rather as a challenge in need of a community response.

We witnessed most of the members' unlearning in terms of 'letting go' after receiving the instructions for solidarity payment and being asked to decide on a fair compensation that suited their social and economic situations. Increased awareness of the shortcomings of old payment schemes encouraged these members to reconsider their accountability within the CSA. As they let go of accustomed ideas on producer-consumer relations—such as predefined and uniform prices per share—and began to interrogate their prior thinking regarding the roles and responsibilities of different actors at the farm, the way was paved for embracing solidarity payment. These members were able to embrace solidarity payment not merely as a new payment scheme, but also as a considerably different view to collaboration at the farm. It is indeed true that an increase in price by means of farmers' decision would have both excluded low-income households and merited less opportunities for inviting more egalitarian structures.

In the later stages of the conversion to solidarity payment, we observed a significant role for unlearning in double-loop learning, embracing novelties and transforming membership. But this is not to say that unlearning was an obligatory passage point or a necessary intervention for the institutionalisation of solidarity payment within the CSA farms. Whereas most members were happy to accept a higher price for their share in the harvest and thus conform to new payment routines, not all actively started to rethink farm categories and question the deeper ethical base of what it means to be a member in a communal farm. While accepting solidarity payment, these members did not recognise the outdatedness of the old scheme or the added value of more egalitarian structures. Moreover, some CSA members may have simply not felt like reflecting on their membership—most obviously those who ignored invitations for solidarity payment or left the farm. In conclusion, unlearning was certainly relevant but not always essential for the implementation of solidarity payment in both cases.

6. Conclusion and outlook

This paper demonstrated the added value of an approach to sustainability transitions that is equipped for capturing the entangled processes of unlearning and learning. While double-loop learning is understood to involve aspects of unsettling established routines, knowledge and mental models, learning remains predominantly associated with the emergence of novelty and the acquisition of new knowledge and skills. An explicit focus on unlearning can foreground motivations, aspects and actions that are involved in collective action towards sustainability, but which are often obscured or overlooked by theories of learning commonly adopted in sustainability transitions research.

The added value of an unlearning perspective is multiple. Firstly, it underlines the deliberate character in the act of discarding and releasing established routines, knowledge and mental models. Secondly, a sustained focus on unlearning draws the researcher's attention to specific actions of confrontation, disengagement, rejection, and non-retrieval of information, vocabulary, mindsets, routines, etc. which have not been central to studies of learning in sustainability transition.

Furthermore, by proposing that examinations of unlearning in sustainability transitions can be fruitfully informed by research on

pedagogical unlearning in addition to organisational unlearning, we were able to (i) identify specific motivations (ethical and ‘political’ ones) and objects of unlearning and (ii) consider unlearning as an empowerment and liberation practice, which would also be missed from a solely organisational unlearning perspective. As a result, our account of the conversion to solidarity payment in the two studied CSA farms more accurately captures the experience of the farmers and members involved; those for whom the rejection of an element (the payment system) of an exploitative, productivist agricultural system was a primary concern, not a side effect of the conversion towards more viable, but also more inclusive, fairer and more dignified farming communities.

We close this paper with suggestions for future research. First, we invite more explicit recognition of unlearning, and specifically of its pedagogical relevance for sustainability transitions. Sustainability transition scholars who have introduced the concept of unlearning to this research field (e.g. Nygren et al., 2017) have predominantly drawn from organisational unlearning theories and connections to postcolonial and feminist approaches on unlearning have remained absent. In view of the recognised need to diversify and decolonise sustainability transition research (Preuß et al., 2021; Truffer et al., 2022), we encourage sustainability transition scholars to recognise how prejudice, privilege and bias hamper moving socio-technical systems beyond dominant capitalist political economies (Feola, 2019; Feola et al., 2021). As elucidated in Section 2, previous studies on unlearning normative conceptualisations of societal construction such as race and gender can provide valuable insight and inspiration on how unlearning informs processes of transformative social change.

Second, how to facilitate and design processes of unlearning for sustainability remains an important question for future research and practice (Grisold and Kaiser, 2017; Klammer and Gueldenberg, 2018; Klammer, 2021). Building on our results on the role of farmers in members’ unlearning, we see value in further exploring i) the role of facilitators in unlearning processes, ii) what mechanisms or interventions may inspire unlearning and iii) what supporting cultures and environments for unlearning look like. With this we seek to reinforce van Poeck and Östman’s (2021:168) recent call for ‘identifying effective strategies to try to influence learning processes and gaining insight in enabling conditions for fruitful learning processes and ways to overcome obstacles to it’. Strategies to influence unlearning are expected to be culture and context-specific, and need to accommodate the inevitable discomfit when being disrupted from habitual ways of knowing and being (McLeod et al., 2020). The unlearning of deeply seated privileges and political economic models is likely to remain an uncomfortable personal experience marked by unease, setbacks, compromises and frustration (Cochran-Smith, 2000; Pillow, 2003; also see Feola, 2019).

Thirdly, our study leaves open a question about collective unlearning when groups of learners collectively shape and make meaning of moments of crises or confrontation. Although this research focused on CSA farms with a strong collective dimension and community base, we found little evidence of collective unlearning in which the community appropriated and designed the unlearning process themselves. This result contrasts with evidence provided by Krauss (2019), who discussed unlearning as an intentional process designed from the bottom-up, with groups indicating ‘what specifically we want to unlearn and how we try to unlearn’ (492, *italics in original text*). To consider unlearning as a deliberate and shared process aiming at a collectively desired outcome is an empowering possibility for grassroots initiatives pursuing sustainability transitions, and thus represents an interesting third avenue for future research.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The data that has been used is confidential.

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