Potential conflicts between ownership rights and environmental protection: Swedish undergraduate students’ views

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ABSTRACT
This study examines the perspectives of Swedish undergraduate students regarding potential conflicts between ownership rights and environmental protection. Conceptions of ‘ownership’ are relevant in relation to the environment and environmental protection as they can highlight a more transboundary relationship between the individual/society and nature. Students studying economics, law and political science were chosen because of their potential future transformative roles as decision makers and policy makers. Content analysis was employed to examine the written responses of 747 students from seven different universities to the open-ended survey question: Can ownership rights and environmental protection come into conflict? Students’ responses were measured twice: at the very beginning of the first semester and then again at the end of the semester. The results show that students expressed a dominant view of ownership in terms of individual ownership, and associations to collective ownership were largely absent. In regards to the potential conflict between ownership rights and environmental protection, most students perceived such a conflict, and it was more common for the environment to be conceptualised as the losing party rather than the landowner. More research is needed regarding how teaching and instruction can deal with the potential conflicts between ownership (private/corporate/governmental) and environmental protection.

1. Introduction
The aim of this study was to explore Swedish social science undergraduate students’ conceptions of potential conflicts between ownership rights and environmental protection (OREP), and how these conceptions changed over the course of one semester. We particularly focused on students in economics, law and political science keeping in mind their potential transformative social roles as decision makers and policy makers. Ownership and environmental protection is an example of environmental-societal relations (Lundholm 2011), and it is imperative that students’ beliefs and knowledge regarding such relations are studied to provide more information for educators (Darling-Hammond and Bransford 2005). This study is also underpinned by the theory of Kollmuss and Agyeman (2002) which states that barriers to pro-environmental behaviour are
caused by both internal and external factors. For this reason, the focus of this study is students’ societal beliefs and conceptions on OREP, which can be regarded as an internal factor. The study takes a particular interest in the relationship between the environment and society from a legal perspective, as the legal order is ‘the most important vehicle through which a worldview is enforced and transformed into social action’ (Vecchione et al. 2015, 12).

The article is structured as follows: Section 2 introduces the main concepts of ownership rights and environmental protection as well as the concept of ecology of law (Capra and Mattei 2015) as an underlying legal perspective to contextualise OREP in both the global and national Swedish context. Section 3 presents previous research on students’ conceptions in the environmental and sustainability education field. Sections 4 and 5 present the materials and method, empirical material and findings. Finally, the article concludes with the results and a discussion relating the findings to practice and future research.

2. Background

2.1. Perspectives on ownership rights and environmental protection

Ownership can refer both to subjects (e.g. individuals, collectives or a commons) and to objects (e.g. capital, land/real estate, intellectual property or physical objects). The particular relationship between ownership and environmental protection, thus, raises the following question: is private ownership considered a hindrance or an aid to environmental protection? (Winter 2015). Various kinds of rights follow from various kinds of ownership and property. Capra and Mattei (2015) show how the legal system in European states has changed from previously protecting the commons and their users from privatisation during the late medieval era to facilitating the privatisation of the commons in order to make a private profit from the extraction of previously shared natural resources. Law has played a fundamental role in ‘naturalising’ this change in power (Foucault 1975). In the very early days of the industrial revolution, the medieval function of the state as defender of the commons was still prominent (Capra and Mattei 2015). Thus, the driving force behind privatisation has been to transform the commons into capital and include them in the capitalistic economy based on the perceived need for capital accumulation. Both sides in OREP are regulated by a multitude of laws. Capra and Mattei (2015) have discussed in particular how the traditional legal worldview has consolidated a system that obstructs and prevents solutions for major environmental problems, especially given that laws largely protect individual and particular special interests rather than the systems and networks that these interests depend on. Moreover, the powerful academic discipline of economics strongly dominates and determines policy making and legislation, especially the so-called ‘law of economics’, which is based on the assumption that it is desirable ‘to set growth targets that induce extractive individual behaviour while discouraging virtuous practices’ (Vecchione et al. 2015, 8), and fuels ecologically destructive practices. Although, the ecologically disastrous effects of such a combination of laws and economics is now obvious, this insight has yet to affect policy making because ‘the legal system has cast our unsustainable model of development in stone as property rights’ (p. 9). However, there are signs of an emerging debate regarding how national and global policy initiatives with the specific aim of environmental protection relate to ownership rights. For example, US right-wing claims that individual private property rights need to be defended against rules aimed at protecting the environment were explicitly expressed by the republican presidential candidates in 2016 (Goldstein and Hudak 2017).

The preponderance for individual private ownership has also become a keystone of agenda setting for current economic doctrines. The well-known and often-cited ‘tragedy of the commons’ (Hardin 1968), for example, concluded that individuals tend to overuse commonly owned natural resources, resulting in a demand that exceeds supply, which in turn leads to scarcity or inaccessibility for all. In other words, when each person is theoretically regarded only as a utility
maximiser, common ownership fails to place the cost associated with any person’s exercise of their common right on that specific person. If a person seeks to maximise the value of their common rights, they will tend to overhunt or overwork the land because some of the costs are borne by others. Hardin, thus, argued that the solution is either to privatisate the commons into strict forms of individual property or to let the state rule with tyrannical control. Hardin’s conclusions have been challenged by Ostrom (1990), for example, who found multiple cases of successful governance of commons concerning river management, grazing in meadows and fisheries through voluntary organisations without a coercive state. As Demsetz (2000) further explains, ‘An owner expects the community to prevent others from interfering with his actions, provided that these actions are not prohibited in the specifications of his rights’ (pp. 163–164).

We believe it is important to bear in mind the challenge that our times are facing concerning environmental governance and protection. While we have knowledge of factors promoting collective action at the local level, less is known about collective action at large scale. Jagers et al. (2019) address this problem and write, Such problems are at the heart of humanity’s most pressing challenges, including climate change, large-scale natural resource depletion, biodiversity loss, nuclear proliferation, antibiotic resistance due to overconsumption of antibiotics, and pollution (p. 3).

Finally, environmental protection may allude to a variety of meanings, including the policies and procedures aiming to conserve natural resources to mitigate the artificialisation of the landscape (Lai, Leone, and Zoppi 2017), to prevent or reduce waste and emissions, to preserve species and ecological systems or to reverse the degradation of the natural environment.

2.2. Contextualisation and problematisation of the conflict between ownership rights and environmental protection

The conflict between ownership rights and environmental protection has not been a common theme in the research literature to date. This is surprising considering that human extractive activities on the natural environment are a common consequence of ownership and, thus, on a more general level, the conflict between ‘human activities and biodiversity conservation’ appears in many different contexts, albeit articulated in different terms. One example is silviculture, the art and science of managing forests, which in combination with increased individual and corporate ownership patterns can be linked to major environmental changes such as loss of biodiversity due to monoculture forestry with short circulation times which, by definition, is difficult to combine with biodiversity and the continuity of the ecosystem. Shared ownership between NGOs is one solution proposed to ensure biodiversity conservation (Young et al. 2005). However, ownership that is primarily justified by environmental concerns can also generate conflict. The United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD Programme) is a global system that allows rich countries to grow and preserve forests in other countries and, thus, avoid having to make their own CO2 reductions (UN 2017). According to scholars (Leach and Scoones 2015; Sills et al. 2014; Visseren-Hamakers et al. 2012), ancient forests are often being cut down for new trees to be planted on land used by indigenous or poverty-stricken people. This means that no actual emission reduction is achieved, while the rights of local peoples are violated due to the enclosure of previously common forests (Scheba and Rakotonarivo 2016). Findings from multiple studies also indicate that the redistribution of standing forests to individual owners in East European post-socialist countries and in East Asia have led to the depletion of biodiversity and wildlife (Fay and James 2009; Kashwan 2016; Sikor and Thanh 2007). However, as environmental protection was not a high priority in the former Eastern Bloc, many formerly state-owned industrial sites were heavily contaminated and a need for remediation still exists with regard to the shared responsibility of the state and private corporations (Bluffstone 2007). These examples show that general conclusions regarding the environmental consequences of different forms of ownership are
difficult to make. More importantly, however, it matters what the purpose of ownership is, and how this purpose is achieved.

2.3. The Swedish context

Although, the conflict between property rights and environmental protection was not a prominent research topic or issue of debate in Sweden during the 2000s, this has recently begun to change because of the debate regarding ownership of forests. In 2016, the following statement by Solveig Riberdahl, a Swedish Judge of Appeal (hovrättsråd), ended in her immediate dismissal from the inquiry into the Swedish Forestry Act:

Should we allow such a vast private ownership of an important natural resource [forests] which are of such great national importance as well as global interest from an environmental standpoint?

This statement started an animated nationwide debate in which Swedish forest owners expressed the concern that their property rights had been threatened. Another example was the debate surrounding berry harvesting, which centred around the right of public access (allemanståten) for everybody to pick wild berries as a common shared resource in privately owned forests; this has recently caused concern due to an influx of foreign professional berry harvesters (La Mela 2014; Sténs and Sandström 2013). The right of public access is also put under pressure by entrepreneurs in the tourism industry, such as those operating horse riding tours (Elgåker et al. 2012). These conflicts in Sweden stem from two issues: first, the contradictory conceptions that exist concerning property (notably, ownership and the right of public access) and secondly, the ideological differences that exist in regards to whether natural resources should be regulated by the government. Although, the precise circumstances of the examples given above are unique to Sweden, the differences in opinion concerning property rights and environmental regulations are common around the world. As Lundegard and Wickman (2007) argue, conflicts of interest always come to the fore when people take a stand on how environmental issues should be addressed.

3. Theoretical viewpoints

3.1. Students’ conceptions of the environment and environmental protection

In their seminal work Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behaviour?, Kollmuss and Agyeman (2002) provided an overview of various models that have been used to explain the gap between individual's environmental knowledge, attitudes and behaviour. The scholars concluded that even though individuals understand problems of environmental degradation and value the environment, they are not always willing to engage in pro-environmental behaviour. To date, research on knowledge in this area has primarily focused on students’ understanding of natural scientific phenomena and problems such as climate change and the ozone layer (e.g. Shepardson et al. 2012). However, a study focusing on Chinese students’ views of economic growth and environmental protection showed that students viewed the environment as ‘repairable’ and that economic growth was, therefore, needed in order to restore or repair environmental damages (Sternång and Lundholm 2012). This reasoning is congruent with the so-called Environmental Kuznets Curve hypothesis. However, the hypothesis becomes problematic given that nature is not a closed environment working in linear and static ways. Furthermore, Rockström et al.’s (2009) findings show that climate change is a driver on a planetary level influencing ecosystems in irreversible ways (e.g. coral reefs), and in addition, natural processes that are nonlinear are difficult to predict, which means that negative consequences are unknown.
This study is underpinned by Kollmuss and Agyeman’s theory (2002), which states that barriers for performing pro-environmental behaviour are caused by both internal and external factors. In this respect, students’ assumptions concerning the relationship between ownership rights and environmental protection can be regarded as an internal factor. Furthermore, Kollmuss and Agyeman point to an important aspect concerning knowledge and its role: ‘It might be true that environmental knowledge and environmental attitude have a more powerful influence on people’s indirect actions than on people’s direct pro-environmental behaviors’ (pp. 258–259). Indirect environmental action can refer to one’s support of institutions for decision-making on public transport or supporting similar decisions taken by the government enabling the public to act in pro-environmentally friendly ways (Kollmuss and Agyeman 2002, 258). A recent study conducted within the framework of value-belief-norm theory (Stern 2000) showed that students’ beliefs and conceptions concerning the efficiency of environmental taxes influenced their support for climate taxes, thus, students who believed taxes were efficient were more likely to support CO2 taxes on petrol by the government (Ignell, Davies, and Lundholm 2019). Similarly, a study investigating the influence of knowledge of the concept ‘social dilemma’, where individuals are unwilling to shoulder the short-term individual costs of acting in a pro-environmental manner to achieve long-term collective benefits, found that students who defined the concept correctly were more likely to make sacrifices for the common good (Harring and Lundholm 2018). This suggests that investigations of students’ societal knowledge, conceptions and beliefs are relevant and that future research in this area has the potential to increase the theoretical understanding of how knowledge and beliefs influence norms and actions.

4. Aims

The aim of this study was to explore how Swedish social science undergraduate students express the possible conflicts between ownership rights and environmental protection, and whether these opinions changed after one semester. The following research questions were, thus, addressed:

RQ1: How do social science students formulate the conflict—what are the themes that emerge in their answers?

RQ2: How do the answers differ between students studying various academic disciplines?

RQ3: Do answers change after one semester?

5. Material and method

The study is composed of a unique two-wave longitudinal data set involving Swedish social science undergraduate students from seven different universities. The first data collection (T1) was performed in the beginning of the first semester of August/September 2014, and the second wave (T2) was conducted in December/January 2014/2015. Students completed the questionnaire in 15–20 min during a lecture. Participation was voluntary and the students who took part received a cinema ticket as an incentive. Based on a comparison of the number of available tickets and those that were distributed, the response rate for T1 was approximately 80% of enrolled students. In total, 1900 students completed one or both questionnaires. Among them, 747 individual students (296 in economics, 258 in law and 193 in political science) participated in both T1 and T2, and this group was the focus of analysis in the present study.

The questionnaire contained a wide range of questions in Swedish relating to environmental issues, which were relevant to economics, law and politics. Most questions were multiple-choice or Likert-items, but the focus of the study was exclusively on one single open-ended question.
Can property rights and environmental protection come into conflict? If you think so, please provide an example of such a conflict. Less than 4% of participants answered ‘no’ to this question, and these answers were included in the ‘not applicable’ (NA) category as they did not match the criteria for any coding category. Because no potential conflict was linked to any specific context, it could be expected that the answers would reveal Swedish students’ underlying contextual assumptions. Such assumptions could reflect a similar discourse to Vecchione et al. (2015) but could also reveal alternative interpretations. The students’ assumptions may also be associated with the specific academic discipline they follow.

A mixed-methods approach was used to analyse the answers; they were justified using both quantitative and qualitative methods because of the nature of the research questions and the researchers’ ambitions to give a complete and coherent picture (Kelle 2006). Qualitative opened ended question (OEQ) analysis (Popping 2015) was used to identify and analyse categories and themes within the data. The advantages of using an OEQ analysis are that it allows for researchers to discover individuals’ spontaneous answers and that it can avoid probable bias resulting from suggested answers provided to respondents. The disadvantages of OEQ analysis are the time consumed in extensive coding and the higher nonresponse rate (Reja et al. 2003; Zuell, Menold, and Körber 2015). The higher rate of missing values and inadequate answers can be explained by the more cognitively demanding answering process required for OEQs compared to multiple-choice questions (Scholz and Zuell 2012). A quantitative descriptive analysis was performed to create a pattern of all the responses and to reveal the differences among students based on academic discipline as well as to study the possible changes in opinions over the semester.

5.1. Analysis

Popping (2015) states that ‘open-ended questions must be closed in the analysis process’ (p. 25). In other words, analytical categories and tools have to be carefully decided and validated before coding can begin. In this study, text analysis was used, and it followed the theoretical assumptions and methodological steps suggested by Popping (2015). Text analysis is part of content analysis, a broader class of methodologies for statistical analyses of qualitative data. The OEQ in this questionnaire asked for a description but was also open to argumentation and assessments. This meant that the answers could be based on facts (i.e. regarding legislation concerning ownership or environmental protection) and also on attitudes and evaluations.

The coding of an OEQ can be performed from an instrumental or a representational perspective (Popping 2015). In the former case, coding is performed according to the researcher’s theoretical point of view with the aim to find text and wordings that fit into pre-defined categories. Representational coding, on the other hand, means that the coder must acknowledge the respondent’s view, which means that they have to look not only for the manifest content but also consider any latent meanings. RQ 1, How do the students formulate the conflict—what themes emerge in the answers? was analysed after repeated readings of all the written answers. The readings revealed three main coding categories in the material: a subject, an object and some kind of balance between ownership and environmental protection in the conflict. In the following step, different themes were identified within each of these three categories. Finally, the distribution of the identified themes between the different academic fields and the changes over the semester were analysed, thus, addressing RQs 2 and 3, How do the answers differ between various groups of students and Do the answers change after one semester?

In order to increase coding reliability, the first author performed two independent coding procedures a month apart. Answers that were not coded in the same theme both times were moved to the NA category.
5.2. Coding

Coding is ‘the process whereby raw data are systematically transformed and aggregated into units which permit precise description of relevant content characteristics’ (Holsti 1969, 94). Although, coding of an OEQ is often used in research, most studies lack an explanation of how the codes in the study were found (Popping 2015). This calls for a more rigorous process when deciding coding categories. Besides semantic validity and relevance, the coding categories have to be mutually exclusive. At the core of the coding procedure is a need to identify and correctly apply the wording from individual answers into conceptual categories that accurately reflect the underlying theory, the research questions and hypotheses and the participants’ views in the collected data.

The instruments and the analysis in the present study were both in Swedish. As all answers were coded numerically, the analysis was not influenced by any impacts of translation. Popping (2015) distinguishes between three ideal types in developing proper conceptual categories: (i) theory-driven operationalisation based on theoretical underpinning and developed a priori; (ii) data-driven categories reflecting empirical findings and developed a posteriori; and (iii) a combination of these two approaches. Both the subject and the object of ownership relates to the theoretical underpinning of the present research as discussed in Section 2.1 and are, thus, examples of theory-driven coding categories. Careful and repeated readings of the answers revealed a third, data-driven category: a balance in the conflict. This category also theoretically reflected the question posed by Winter (2015) of whether private ownership was considered a hindrance or an aid to environmental protection.

5.2.1. The subject of ownership

The theoretical underpinning of the present study (Capra and Mattei 2015; Vecchione et al. 2015) suggests that the concept of ownership in today’s culture is primarily associated with private property and to a much lesser extent with collective or shared ownership. It can be argued that this condition will have an impact on students’ views on who they associate ownership with. To examine whether this was the case, the answers regarding ownership were coded into three themes: (i) private/individual, (ii) private corporate and (iii) collective or common. Some of the answers did not include any subject (e.g. 'When ownership rights are abused, thereby causing environmental damage') and were, therefore, coded as NA answers. When the subject of ownership was identified as well as the property, the object of ownership also came into focus.

5.2.2. The object of ownership

Vecchione et al. (2015) addressed the on-going and accelerating change from common and open access to resources to the commodification, capitalisation, extraction and marketisation of resources. This draws attention to the kind of resources or properties the students associated with ownership – that is to say, the object of ownership. However, a concept like resource is too multifaceted to categorise a priori as it can connote both a wide range of natural resources, as well as various human resources. Intellectual (immaterial) property such as patents, copyright and trademarks constitute examples of human resources as well. An initial reading of all the students’ answers resulted in the identification of three main themes: (i) physical objects, (ii) arable land/forest and (iii) real estate for housing. There were many examples of answers in which a clear object of ownership was either lacking or unclearly stated, and these were coded as NA. The procedure of coding the object, thus, corresponded to the third approach – a combination of inputs from theory and data. However, the object of ownership could also be interpreted as the object of environmental protection. This duality culminated in a final coding category – the balance in the conflict – which assessed if and how students expressed any kind of ‘subordinate–superior’ relation between ownership and environmental protection.
5.2.3. The balance in the ownership–environment relation
Unlike coding the subject and the object, which could be considered apparent OEQs with only a descriptive component to be coded (Popping 2015), the question regarding the balance in the conflict could have latent meanings rendering interpretation more challenging. For example, when describing the conflict between ownership and environmental protection, the wording in answers could implicitly or explicitly present one of the parties as weaker and more likely to be the ‘loser’ compared to the other. One student, for example, stated that a ‘Forest farmer is prohibited to cut his forest due to decisions by the environmental authorities to protect rare birds in his forest’, and this answer points to the owner being on the losing end of this conflict. Here, the use of the verbs prohibit and protect are central to the interpretation. It is the owner that is prohibited, and it is the environment that is protected. In contrast, one of the answers included statements presenting the environment as the ‘loser’ in a conflict: ‘If a person runs environmentally harmful activities on his own plot’. Also, the environment could be a potential loser if an intended action from the owner is realised: ‘If someone owns a piece of land and wants to build something on or near an area with rich animal and plant life’. Thus, not only does the active agent need to be identified and coded as the ‘owner’ or the ‘protector’ but it is also necessary to judge who is suffering the consequences of the implemented or intended action. At times, sentences were impossible to interpret in the ‘subordinate–superior’ category; for example, ‘As a private person, you can come into conflict with an authority that looks after environmental protection’. Such examples were coded as a ‘draw equilibrium’ between ownership and environmental protection. In sum, the answers were coded as follows: (i) draw: the conflict is adequately presented but none of the parties are superior; (ii) the owner is the loser; (iii) the environment is the loser; or (iv) NA: the answer is inadequate/irrelevant and does not include any substantial information regarding the balance between the owner and the environment, as well as the losing party.

5.2.4. Not applicable answers and missing values
When OEQs are included in a questionnaire, the amount of missing values and inadequate responses – the unanswered empty fields – are often numerous (Popping 2015). Missing values accounted for 15% of T1 answers and 9% of T2 answers. There was also a substantial number of inadequate or irrelevant answers that fell outside the criteria for each coding category; for example, ‘Yes, it is not the same thing’, which contains neither a subject nor a specific object of ownership and was, therefore, coded as NA in both categories. NA answers also included written answers that did not fit into a theme because of one or more of the following reasons: (i) statements like ‘I don’t know’ or ‘I have no idea’; (ii) statements that lacked a subject ‘Yes, buildings in nature protected areas’ or lacked an object ‘Yes, you can own something that can affect the environment negatively’ or if the balance in the conflict was ‘no’ (i.e. there is no conflict) or if the balance was insufficiently presented and impossible to judge, ‘Yes, depending on how one uses the owned property’; or (iii) statements that fitted into more than one theme and, thus, were difficult to code in a mutually exclusive way.

6. Results
It is necessary to highlight that nearly all the students’ answers to the OEQ began with ‘yes’, followed by a more or less developed motivation. Thus, it is clear that an overwhelming majority of the students believed that a potential conflict between ownership rights and environmental protection exists. This section begins with a summary of how students formulated the conflict, followed by a presentation of the differences in the answers between the various groups of students according to their chosen academic field (economics, law and political science) and the changes that were found in the answers after one semester.
Table 1 shows the percentage distribution at T1 and T2 for all the themes under each of the three coding categories (the subject, the object and the losing party in the balance). The table also shows the share of NA answers and missing values (summing up to 38–46% of the answers for each of the three questions).

### 6.1. The subject of ownership

During both measurement times (T1 and T2), the category of ‘private individuals’ (translated from Swedish to English) was clearly the most common answer when students associated ownership to a subject. More than half of the answers associated ownership to a single person (Subject: first–third person or ‘one’), and this increased from 50 to 57% from T1 to T2. Individuals were expressed in terms of ‘I’, ‘you’ or ‘he’ (never she), that is, grammatically in the first, second or third person singular: ‘Yes—you own land, but you are not fully entitled to do whatever you want with it due to environmental protection restrictions of various kinds’. A vaguer statement using the word one which in Swedish refers to the third person singular was as follows: ‘(Yes), if one wants to build a house on a beach plot under riparian zone protection’. The indefinite singular forms were also frequent among the answers in this category: ‘(Yes), if a landowner wants to build a house in a place where unusual animals live’.

Corporations were represented as subjects in only 3% of the answers. One example was ‘When a company owns a factory and their emissions destroy the environment. In such a case, ownership and environmental protection come into conflict’. Between T1 to T2, only a small change in the answers were found in this category.

### 6.2. The object of ownership

In respect to conflicts, 40% of answers in T1 and 46% in T2 were associated with land as the object of ownership, particularly forests: ‘I can own a forest and, thus, be able to clear-cut an area, but if there are threatened species in the forest, there will be a conflict about whether or not the owner may exploit his or her forest’ (ld50). Another frequent conflict concerned the object of riparian zones, which are areas close to the shoreline of a lake or sea, ‘I can own a property on several acres of seaside land, but rules on construction and building concerning the riparian zone does not entitle me to exploit it’ (ld263). Another common theme concerned the exploitation of land and biological diversity or ecological balance, ‘Yes [there is a potential conflict], when privately owned land that is unique or contains biological diversity is exploited’ (ld196). There was a small change from T1 to T2 in this category in that a smaller number of students associated physical objects to cars or other items, ‘Cars are environmentally damaging, and ownership makes it virtually impossible to restrict utility rights’ (ld349).

### 6.3. The losing party in the balance

The aim of the third coding procedure was to analyse and identify whether a conflict was presented in terms of a subordinate and superior party. About one third of the students articulated...
a conflict in which the environment was the loser. Here, access rights that were linked to ownership were identified as an important factor, for example: ‘Cars are environmentally harmful, and ownership makes it virtually impossible to restrict the right of use’. To a lesser extent, that is, 15% of answers included statements in which the owner was presented as being on the losing side: ‘I want to build houses near the water. No, you must not—Amen!’. The restrictions regarding building activities near rivers, lakes and the seafront were the most recurring examples of the owner being interpreted as the losing party.

Another common theme was that forest owners were forbidden to cut down any part of the forest if rare species lived therein, ‘I assume that environmental protection laws may force owners in the same way that people can be forced into mental care. This aims to protect the environment’. Not all statements indicated a losing party in the balance considering that in 15% of the answers the conflict was difficult or impossible to interpret in terms of a subordinate or superior relation, ‘Yes, when the owner’s interest in what he is doing on his field is in conflict with the environmental impact’.

6.4. How do the students’ answers differ according to academic field, and did answers change after one semester?

The findings from the cross tabulation (Table 2) show that the differences between students in the various academic disciplines are small. When comparing the distribution of responses between the groups for T1, however, one clear difference that was found was that the use of the first–third person as a subject was more common among students in the political sciences (51.8%), compared to students in economics (39.7) and law (39.3). The most obvious change from T1 to T2 was that the number of law students and economics students referring to first–third person ownership increased from 39 to 49% and 40 to 44%, respectively. In contrast, the number of political science students referring to first–third person decreased after one semester from 52 to 42%, and, as mentioned earlier, there was an increase in answers that mentioned the ‘corporate’ and the ‘collective’ interests. The use of the vague third person in Swedish (‘one’) decreased from 20 to 14% among law students but increased among both economics and political science students after one semester.

In regards to the object of ownership, the answer that dominated all three groups at both T1 and T2 was land. A particular difference in this respect concerned forests being used an example, which increased among economics students from 6.7 to 12.5%.

Table 2. How do students of law, economy and political science formulate a conceived conflict between ownership rights and environmental protection?

| Subject | Economics T1 = 252 | Law T2 = 273 | Political science T1 N = 210 | Total T2 = 235 | T1 = 168 | T2 = 173 | T1 = 630 | T2 = 681 |
|---------|------------------|-------------|-----------------------------|---------------|---------|---------|---------|---------|
| 1st-3rd | 39.7             | 44.3        | 39.3                        | 48.5          | 51.8    | 41.6    | 43.0    | 45.1    |
| ‘One’   | 16.7             | 21.2        | 20.4                        | 14.0          | 10.1    | 16.8    | 16.5    | 17.6    |
| Corporate | 3.6             | 3.3         | 4.3                         | 1.7           | 4.2     | 6.4     | 4.0     | 3.5     |
| Collective | 0.8            | 0.4         | 0.9                         | 0             | 0       | 0       | 0.6     | 0.1     |
| NA      | 39.3             | 30.8        | 35.1                        | 35.7          | 33.9    | 35.3    | 35.9    | 33.6    |
| Object  |                  |             |                             |               |         |         |         |         |
| Land    | 51.6             | 49.5        | 41.7                        | 47.7          | 48.2    | 56.1    | 47.6    | 50.5    |
| Forest  | 6.7              | 12.5        | 7.1                         | 5.5           | 14.3    | 9.2     | 8.9     | 9.3     |
| Real Est. | 3.5           | 7.0         | 10.0                        | 7.2           | 8.3     | 8.1     | 7.0     | 7.3     |
| Ph. Object | 7.5           | 1.8         | 13.7                        | 6.8           | 5.4     | 5.8     | 9.0     | 4.6     |
| NA      | 30.7             | 29.3        | 27.5                        | 32.8          | 23.8    | 20.8    | 27.5    | 23.8    |
| Balance |                  |             |                             |               |         |         |         |         |
| Draw    | 18.2             | 16.8        | 16.3                        | 20.4          | 17.9    | 12.1    | 17.5    | 16.9    |
| Owner loser | 17.4           | 13.6        | 23.0                        | 23.4          | 15.5    | 17.9    | 18.7    | 18.1    |
| Env. loser | 32.4           | 37.0        | 35.9                        | 22.1          | 44.6    | 36.4    | 36.8    | 31.7    |
| NA      | 32.0             | 32.6        | 24.9                        | 34.0          | 22.0    | 33.5    | 27.0    | 33.0    |

Percentage distribution of themes emerging in the students’ answers. Missing values have been reduced.
Finally, an important finding was that the number of law and political science students holding the view of nature being the losing party decreased from 36 to 22% and 47 to 36%, respectively, while interestingly, the number of economics students holding this view increased from 32 to 37%. This indicates that after one semester of economics, students changed their view of seeing nature as the losing party; the share of economics students holding this view was similar to that of political science students.

7. Discussion

According to students’ answers, ‘private individuals’ were believed to be the most common subject, and land was by far the most frequent object. Regarding how students perceived the balance in the conflict, it was found that they were twice as likely to view the environment as the losing party rather than the land owner. The main difference found in the answers between the three groups of students according to their academic field in the beginning of the semester concerned the subject of ownership. Although, political science students more often referred to individual owners than did economics and law students, this trend reversed after a semester.

Political science students were also found to interpret the environment as the losing party in the conflict more often than economics and law students. The most prominent change after one semester was that both law and political science students viewed the environment as the losing party in the conflict to a substantially lower extent. This pattern aligns with the view that owned property is more of a barrier than an aid in regards to environmental protection (Winter 2015). Frequent answers in which environmental authorities and politicians were presented as threats to individual ownership also reflected this view.

Among economics and law students, the use of the individual first, second or third person to denote subjects of ownership increased from T1 to T2, while political science students moved in the opposite direction. This pattern may reflect the suggestion from Sidanius et al. (1991) that economics and law students belong to a category of students with shared values and training for power professions, while political science students belong to the category of liberal arts. A stronger association with individuals as actors may mirror the shared values found within the category of future power professionals. However, not all the current findings fit with Sidanius’ suggestions. The finding that both law and political science students were less likely to describe the environment as the losing party after only one semester stands in contrast to the change in view of the economics students who were more likely to see the environment as the losing party in the same period.

The prominence of the categories of individual ownership and exploitative motives behind ownership in students’ answers supports Capra and Mattei’s (2015) claims regarding the lack of an ‘ecology of law’. This conclusion is supported by the fact that the commons and collective ownership categories were nearly non-existent in the answers. The absence of answers including collective ownership and the lack of protective motives given to the owners may also be interpreted as implicit assumptions regarding the relation between ownership and environmental protection. Most of the students viewed ownership as a matter primarily concerning private individuals and did not bring up shared or common ownership. It became obvious that the ownership of land was associated with exploitative motives rather than protection and conservation. Given these findings, it is important to remember that the lack of an ‘ecology of law’ is a result of political decisions and legislative processes, and not that of inabilities experienced in the legal system.

7.1. Implications for practice and future research

The findings relate to both theoretical claims concerning internal and external factors highlighted by Kollmuss and Agyeman (2002) and to educational practice in social science disciplines.
The study highlights students’ views regarding the relationship between ownership and the environment, where the environment is most commonly described as the losing party when the ownership is private or individual. Students’ conceptions about how private versus corporate ownership affects the environment negatively are important findings and may have an impact on the support for government policy shifts aimed at securing environmental protection and avoiding further degradation. This aligns with Kollmuss and Agyeman’s conclusions (2002) that the role of knowledge could possibly be more important in regards to indirect pro-environmental action.

With these findings in mind, educators in these disciplines can hopefully have a better understanding of students’ thinking when considering both content and instruction. The findings can also equip educators to better respond to the increased attention to these issues from the policy level regarding higher education’s role in the transformation process towards sustainability (Laessøe, Feinstein, and Blum 2013). An important reminder is that the longitudinal period of the present study was only one semester (about four months), yet signs of change in students’ opinions were still found. Future research can, thus, focus on the multiple aspects of change and the causal mechanisms therein. In particular, it would be interesting to further investigate the reasons for an increase in the number of economics students’ holding the view of the environment as the losing party and also to investigate the reasons for a decrease in this view among the law and political science students.

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