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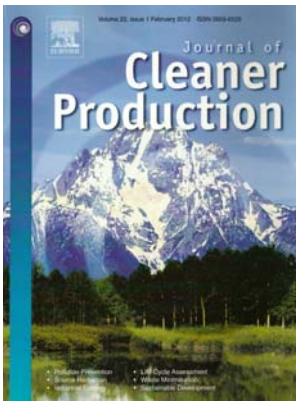

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Learning to change universities from within: a service-learning perspective on promoting sustainable consumption in higher education

Abstract

Progression towards more sustainable consumption patterns is a key challenge of the 21st century. Higher education plays a crucial role in this in as much as it significantly contributes to building the capacity of future generations to deal with real-world problems of unsustainable consumption. However, conceptually substantiated approaches to educating for sustainable consumption in universities are still poorly developed. This paper contributes to bridging this gap. It merges two separate fields of scholarship (service learning and incidental learning) and analyses key aspects of a teaching approach to promote learning for sustainable consumption in higher education. A case example of a series of project-based seminars is presented that illustrates how the conceptual approach can be applied in practice. Here it is illustrated how the integration of the concept of transdisciplinarity into service learning can help to further develop the concept to support rich and meaningful learning settings for students The paper concludes with a critical appraisal of the approach for moving the agenda of higher education for sustainable development in the context of consumption forward and a call for further research.

Keywords:

Service learning, higher education, sustainable consumption, incidental learning, organisational culture, transdisciplinary collaboration

1. Sustainable consumption as an educational challenge

Consumption is today considered a key driver of environmental change (Wilk, 2002). Consumer goods cause both *direct* global environmental pressures while they are being used or prepared as well as *indirect* pressures that have accumulated during their production (EEA, 2010). In Rio de Janeiro in 1992, the world leaders agreed on action to change what they identified as unsustainable patterns of consumption and production (Jordan and Voisey, 1998; Quental et al., 2011).

Today, twenty years after the Rio conference, recent studies provide alarming snapshots on the limited progress made over the past decades. In the latest Global Environmental Outlook (GEO-5) reporting process, UNEP (2011) data indicates that the global extraction of natural resource materials has increased by over 40 percent in total between 1992 and 2012. According to the Ecological Footprint network, humanity's footprint increased by 27 percent between 1990 and 2007 (WWF, 2010). Recent studies estimate that unless the prevailing excessively short-term political and economic model is abandoned, in 2050 we will be facing a world economy four times larger than today that uses about twice as much energy (OECD, 2012; Randers, 2012).

Data also shows that human demand on the environment is unequally distributed. In 2006, only 16 percent of the world population accounted for more than three quarters of global consumption expenditure (Assadourian, 2010). OECD countries, representing less than a fifth of the world population, account for more than half of the world electricity demand (OECD, 2011), while about 1.5 billion people completely lack electricity (UNDP, 2011).

In light of this inequitable distribution of access to resources, it has been recommended prior to the Rio+20 Summit to complement the United Nations' Millennium Development Goals (MDGs) with Millennium Consumption Goals (MCGs), which focus on "managing the consumption patterns of the rich" (de Zoysa, 2011: 1). But which forms of consumption – understood both in terms of individual consumer actions and structural consumption-production systems – are sustainable? The arguably most widely spread definition of sustainable consumption stems from an international gathering of government officials and NGO representatives in Oslo in 1994 at which *sustainable consumption and production* was established as the "use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations" (Ministry of the Environment Norway, 1994). As argued elsewhere, this definition has been criticised in the scholarly literature for a number of shortcomings: namely for lacking a clear distinction between consumption and production, its terminological vagueness and for relating essential ideas to specific and arbitrary measures (see Fischer et al., 2012).

An alternative approach to overcome these shortcomings would be to recollect two overarching normative criteria that are already mentioned in the Brundtland definition: the concept of *basic needs* and the idea of *limitations* (World Commission on Environment and Development, 1991: 54). Sustainable consumption, in its essential meaning, is consumption that contributes to create or sustain external conditions that allow all human beings today and in the future to meet their objective needs (Fischer et al., 2012). As with the overall idea of sustainability, the process of specifying sustainable consumption is subject to controversial debate. In the search for transition pathways to more sustainable production-consumption systems (Lebel and Lorek, 2008), a considerable number of approaches and measures have been proposed as possible solutions. There is ample experience with and research on 'hard' *instrumental* measures, such as marketization and regulation approaches (Jerneck et al., 2011). These also include legislative, regulatory and juridical as well as financial and market instruments (Dalal-Clayton and Bass, 2007; Kaufmann-Hayoz et al., 2001). Most scholars suggest complementing these approaches with 'soft' *persuasive* measures that aim to change social norms and people's willingness to adopt new attitudes and behavioural patterns (Jackson and Michaelis, 2003).

Education, commonly categorised as a 'soft' and persuasive policy instrument, is also often credited with the potential to facilitate the formation of a sustainable society that is both democratic and deliberative (Barth and Fischer, 2012). A number of important policy papers emphasise the need for an educational response, describing education as "one of the most powerful tools for providing individuals with the appropriate skills and competencies to become sustainable consumers" (OECD, 2008: 25). In the past ten years, consumption has become an increasingly important theme in pedagogical discourse across different educational sectors. Particularly in the context of the United Nations World Decade on Education for Sustainable Development (2005–2014), a number of pilot projects and best practice examples have emerged that focus on the promotion of sustainable consumption through education and its institutions.

Higher education plays a crucial role in the context of sustainable development in as much as it has a significant influence on the way in which future generations will deal with the social challenges ahead. Emphasising how these challenges go beyond an education for developing future career profiles, Hopkins et al. (2005) state that universities "are called on to teach not only the skills required to advance successfully in a globalized world, but also to nourish in their students, faculty and staff a positive attitude towards environmental issues and cultural diversity" (Hopkins et al., 2005: 13). As this may not be misunderstood or misused in a purely instrumental or even indoctrinating way, approaches are called for which focus on "building capacity to think critically about [and beyond] what experts say and to test sustainable development ideas" as well as "exploring the contradictions inherent in sustainable living" (Vare and Scott, 2007: 194).

Apparently, the transition from the classic ivory tower focus on disciplinary development towards a culture that strengthens the link between academia and other actors in regional sustainability initiatives is not at all an easy undertaking and calls for democratising research processes, providing communicative space and tools for democratic change and the transformation of power relationships (Adomßent, 2008; Barth et al., 2011). At a societal level this transition is nothing less than a system innovation, with many stakeholders involved, each with their own values and preferences, strategies, resources and perceptions of the future (Loorbach, 2007).

2. Learning for sustainable consumption in higher education

Documents like the Talloires Declaration (ULSF, 1994) or the Copernicus Charta (COPERNICUS Alliance, 1993) indicate how early the tertiary sector responded to the challenges arising out of the global consumption crisis. While the early phase was characterised by relatively independent efforts to integrate sustainability into the organisation's operations (e.g. Delakowitz and Hoffmann, 2000; Ferrer-Balas, 2008) and to include sustainability in the curriculum (e.g. Barth 2013; Lidgren et al., 2006; Lozano, 2010), the focus of the debate has since shifted towards more concerted and integrated efforts and *'whole-of-university' approaches* (Mcmillin and Dyball, 2009) and *community outreach* (Zimmermann et al., 2011). A number of tools and instruments have been developed to monitor progress towards the implementation of sustainability principles in all facets of an organisation (e.g. AASHE, 2010; Roorda, 2001; ULSF, 2009). These tools and instruments provide a solid and well-tested approach to implementing sustainability on the organisational meso-level of the education system.

However, the question of how learning processes related to sustainable consumption can be promoted on the micro-level among university students in educational organisations still constitutes a fairly under-researched area. Learning for sustainable consumption aims first and foremost at developing knowledge and competencies so as to be able to make informed decisions regarding consumption. It is thus not only the development of factual knowledge ('knowing-*that*') but also procedural knowledge ('knowing-*how*') that is at stake. Consequently, a goal of education for sustainable development is to develop *key competencies* to actively engage in consumption-related decisions as a private consumer and a public consumer citizen (Barth and Fischer, 2012; cf. Barth et al., 2007; Frisk and Larson, 2011; Rieckmann, 2012; Segalas et al., 2010; Wiek et al., 2011).

Students develop such competencies not only inside the classroom but also as part of informal learning processes in their daily life experiences on campus and elsewhere (Barth et al., 2007). In this paper we want to explore how learning for sustainable development can be understood as the interplay of two different forms of learning: learning as an active involvement in consumption-related decisions and activities and learning in a more passive manner based on experiences of existing norms, rules and practices in the immediate environment.

As a result, this conceptual paper analyses how such a dual perspective on students' consumer learning in higher education can be substantiated by drawing on the concepts of experiential and service learning. A case example of a series of project-based seminars is presented that illustrates how the conceptual approach can be applied in practice. We critically discuss the case example in light of the principles of a service learning approach, and we reflect how the concept of transdisciplinary collaboration can enrich the idea of service learning. This paper concludes with a critical appraisal of the approach for moving the agenda of higher education for sustainable development in the context of consumption forward and a call for further research.

2.1 Learning to change

The first and most obvious way of addressing learning for sustainable consumption taking place in higher education organisations is to do so as part of their curriculum. This learning can occur in the classroom, but as students spend much of their time outside formal education, more attention has recently been given to forms of learning that are conceptualised as tacit, incidental or informal (Barth et al., 2007). In both cases, metacognitive approaches are of particular interest to the tertiary sector as they make use of a combination of experience and reflection occurring during the learning process to support students' transition towards becoming active, engaged participants and even owners of their learning processes (Bransford et al., 2000).

The *experiential learning* movement has long articulated this need for deep learning as a type of 'bottom-up' method, in which general principles are inductively inferred from the experiences and observations of individual actors (Kolb and Kolb, 2005; Kolb, 1984). Kolb (1984) has proposed a holistic model of experiential learning that focuses on experience, activity and reflection, in which learning becomes knowledge through experience. This is confirmed by Schön (2009), who examined how "knowing-in-action" becomes "knowledge-in-action" through the learning process of "reflective practitioners".

Experiential learning figures prominently in education for sustainable development as it acknowledges real-life problems and experiences and helps to develop capacities for enacting change. In a review on education for sustainable development in higher education, Dawe (2005) describes experiential learning as one of three general learning and teaching orientations and emphasises the notion of "connecting or reconnecting to reality" (as illustrated in a number of case studies: e.g. Ferrer-Balas, 2004; Herrmann, 2007; Peet et al., 2004).

With respect to organisational changes towards sustainability, *service learning* offers a distinctive form of experiential learning that is worthwhile to examine more in detail. Service learning engages students in active, relevant and collaborative learning and is distinguished from other approaches to experiential education by its intention to focus equally on both the service being provided and the learning that is occurring (Bringle and Hatcher, 2000). At the same time it is compatible with higher education's renewed interest in community outreach

and a ‘scholarship of engagement’ and is oriented towards volunteerism, social transformation and participatory democracy (Boyer, 1996; Markus et al., 1993).

Bringle and Hatcher (1995: 112) define service learning as “a seminar-based, credit-bearing, educational experience in which students (a) participate in an organized service activity that meets identified community needs and (b) reflect on the service activity in such a way to gain further understanding of seminar content, a broader appreciation of the discipline, and an enhanced sense of civic responsibility”. Sigmon (1997) emphasises the two-way process of learning, between both those who provide service and those who receive it, as an experiential education approach that is premised on “reciprocal learning”.

Accordingly, service learning occurs when there is a *balance between learning goals and service outcomes*. By engaging students in meaningful projects, it contributes to deep learning by combining theoretical with practical knowledge and providing them with fundamental concepts (Bodorkós and Pataki, 2009; Sutheimer, 2011). Service-learning programmes have an academic context and are designed in such a way that both the service aspect enhances learning and the learning process enhances service in an integrated way, not merely as a supplementary activity.

While in most cases the service partner is found in the wider community of a university, the community does not necessarily begin off campus. Quite the contrary, the organisation itself can become a *community partner* and provide a living laboratory uniquely suited to service learning (Sutheimer and Pyles, 2011). Community outreach then starts with the *organisation’s community* and takes into account that there are no sharp boundaries separating ‘inside’ and ‘outside’, but instead that there are a variety of different links between the organisation’s community itself and the surrounding environment. Not only is this an approach likely to eliminate a number of logistical problems, but it is also an important opportunity to link the organisation’s culture with its students’ learning processes. Especially in higher education for sustainable development a number of case studies provide conceptual, empirical, and historical accounts on how to *link campus partners with educational purposes in sustainability* (e. g. Bacon et al., 2011; Brundiers and Wiek, 2010; Bowden and Pallant, 2004).

Research on service learning shows different learning outcomes with an impact on student outcomes (cognitive, affective, and ethical), benefits for the participating community and the links between students and community (Astin and Sax, 1998; Butin, 2010; Giles and Eyler, 1998; Kendrick, 1996). In a service learning approach to education for sustainable development, increasing civic engagement and the development of leadership skills and self-confidence is reported, with students feeling able to make a difference for the community (Sutheimer and Pyles, 2011; Varty et al., 2011).

In summary, service learning offers potential value in two important ways. First, it enables students to gain *new knowledge and competencies* in an experiential learning process as active service providers and, second, if the projects and services are university-based its outcomes facilitate *organisational changes towards sustainability*.

2.2 Learning in a changing environment

Compared to active and engaging experiential learning, the second way learning for sustainable consumption occurs is more unconscious and unintended. Two main differences can be observed: first, it is informal learning, i.e. an “activity involving the pursuit of understanding, knowledge or skill which occurs without the presence of externally imposed curricular criteria” (Livingstone, 2001: 4). Second, learning happens as an incidental by-

product, which may or may not be consciously recognised, but is mostly a result of other activities. Activities that trigger such *incidental learning* are task accomplishment, interpersonal interaction, awareness of organisational culture, trial-and-error experimentation or even formal learning (Marsick and Watkins, 2001). Sometimes referred to as a process of socialisation (Schugurensky, 2000), it emphasises the importance of the organisational context, a context a learner once described as the "karma in the walls and halls" (Callahan, 1999, cit. in Marsick and Watkins, 2001: 27).

The *culture of an organisation*, thus, plays a crucial role in incidental learning, as students are learning indirectly through management practices and policies when they 'absorb' rules, routines and practices (Leroux and Lafleur, 1995). Incidental learning happens in many ways: through observation, repetition, social interaction, that is by watching or talking to peers or by being forced to accept or adapt to situations (Baskett, 1993; Cseh et al., 1999). Accordingly, developing opportunities for social exchanges, changing the organisational context (e.g. procurement policies) and facilitating activities (e.g. student-run sustainability projects) are drivers to create a climate that fosters incidental learning.

Lipscombe (2008) emphasises the potential of extra-curricular activities for education for sustainable development, as besides their direct and intended outcomes they can also enhance incidental learning. Winter and Cotton (2012), however, note that the potential of the 'hidden curriculum' has still not received enough consideration.

3. Service learning and incidental learning in higher education – the BINK approach

An approach to utilising the potential of service learning and incidental learning for the promotion of sustainable consumer learning in higher education was developed and implemented in the context of the research and development project BINK[1] (2008–2012). The project brought together six educational organisations, practitioners from the field of (sustainable) consumption and an interdisciplinary team of researchers to collaboratively investigate how educational organisations can change their role to that of an agent of transformation towards sustainability.

3.1 Changing the organisational 'culture of consumption'

The BINK project provided an integrated approach that focused explicitly on sustainable consumption and on the *formal and informal dimensions of students' consumer learning* in educational organisations. The main idea behind the project was that organisational cultural change can be brought about by implementing different activities planned and designed collaboratively by practitioners and researchers to stimulate learning processes. In order to identify organisational domains affecting consumer learning, a framework of 'culture of consumption' (Fischer, 2011b) in educational organisations was developed that builds on Schein's (2004) concept of organisational culture and applies this to educational organisations and to the domain of consumption. A total of *six domains* with relevance for students' consumer learning were identified (Table 1).

Table 1: Educational organisational culture of consumption (Fischer, 2011a and 2011b)

[1] German acronym for *educational institutions and sustainable consumption* (www.consumerculture.eu)

Domain	Exemplary aspects
Resource management	• How does the organisation allocate and manage its *spatial and temporal* (e.g. cafeteria architecture, length of lunch break), *financial* (e.g., grants for consumption-related activities), *material* (e.g., energy demand, emissions, waste), *human* (e.g. staff training, knowledge management), *socio-ecological* (e.g. networks, external partnerships) and *administrative* (e.g. job descriptions, responsibilities) resources?
Disciplines and themes	• Which (groups of) actors and disciplines/classes address which themes of consumption? • Which research initiatives deal with which aspects of consumption?
Participation structures	• To what extent and with what degree of formality are internal and external stakeholders involved in consumption-related decision-making? • How does consumption feature in formal and informal communication structures and flows?
Performance orientations	• To what extent is the promotion of consumer learning understood and labelled an integral part of the organisational mandate? • To what extent do performances and achievements in the domain of consumption feature in examination and assessment procedures, grading schemes and are thus considered relevant with respect to the awarding of degrees?
Educational goals and objectives	• What consumption-related goals and objectives are pursued in organisational activities, how do they relate to each other and how are they interpreted by different actors? • What didactical and methodological approaches are chosen in teaching and learning about consumption-related issues?
Consumer pedagogical assumptions	• What are the dominant assumptions made by adults of youths and young consumers, what are dominant assumptions by youths of adult consumers and how do these assumptions relate to each other? • What are the organisational actors' evaluative assumptions regarding the function and role of their organisation as a consumer socialization agency? • What conceptions of a good life and of consumer identities are recognised and which are dismissed by the dominant cultural order?

The six domains of the framework of culture of consumption describe the organisational setting as an environment for individual consumer learning. They were used as a starting point for a series of activities within each of the affiliated educational organisations that sought to promote learning processes both directly (e.g. through curricular activities) and indirectly (e.g. by changing food provision systems). As a first step in the process, steering committees were formed at each organisation comprising representatives of all relevant groups of actors (e.g. administration, management, lecturers and researchers, students and providers of consumption offerings on campus such as the cafeteria). These steering committees performed a steady-state-analysis of their organisation's culture of consumption using the conceptual framework. Importantly, the framework did not provide any suggestions in terms of specific change measures or techniques. Rather, its aim was to guide and focus the reviewers' analytical attention to the variety of aspects within the organisational culture that are relevant for consumer learning. Drawing on their analysis of their organisation's culture of consumption and on further deliberations about strategic priorities and effective approaches (see Barth, 2013), the steering committees subsequently developed a hierarchy of goals. These were then further elaborated and refined into a series of intervention measures, which were eventually implemented in the second half of the project (Fischer, 2011a; see also figure 1).

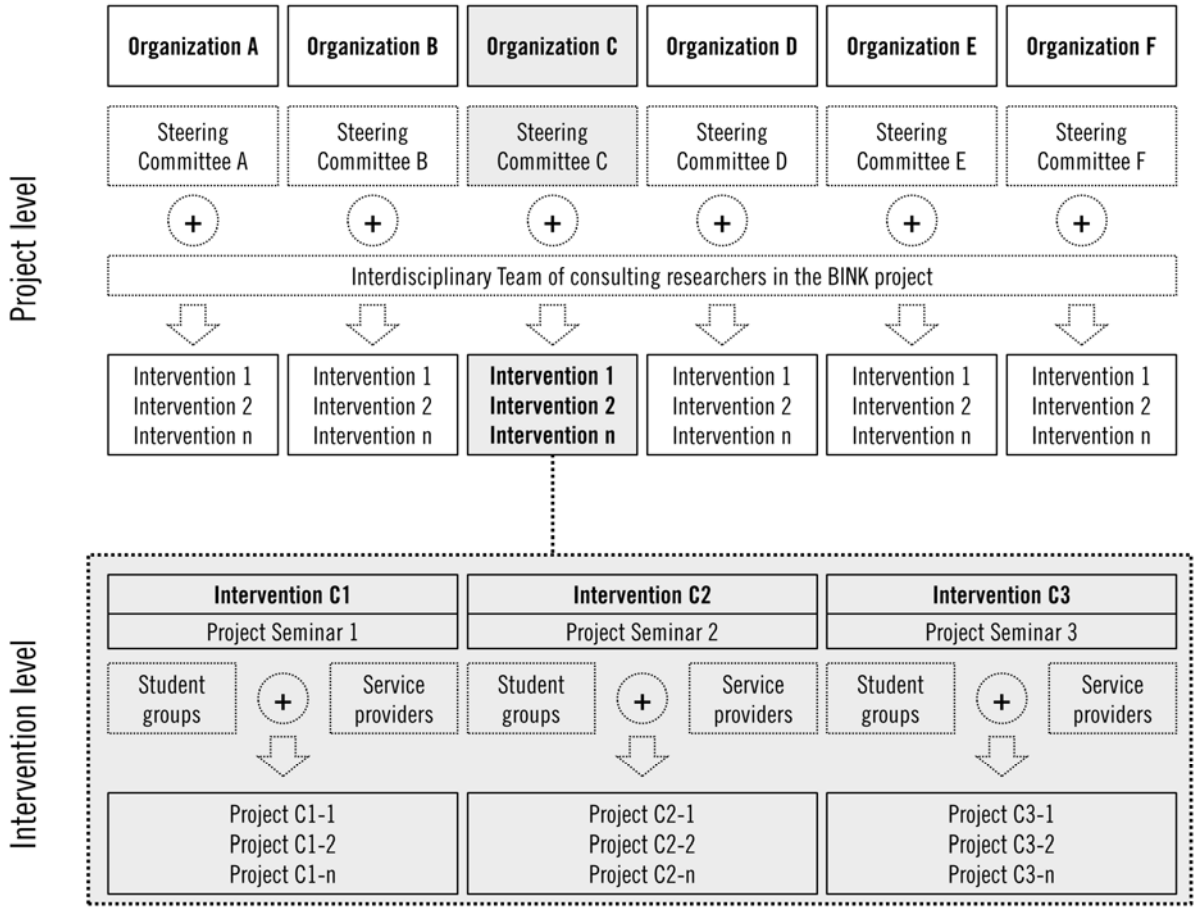

Figure 1: Project seminars situated in the overall architecture of the BINK project

3.2 The seminar concept

Leuphana University of Lüneburg was one of the six educational organisations participating in the BINK project. At the heart of its intervention strategy were a *number of seminars* that were explicitly designed according to the principles of service learning (see Table 2). The aim of these seminars was to *trigger learning processes in two ways*: by means of active and participatory *service learning for the students participating in the seminar*, and through *changes in the organisational culture of consumption as a setting for incidental learning among the broader student population* of the university. This twofold approach was supported by empirical findings in the BINK project indicating that in related educational settings of secondary and vocational schools both participation in and exposure to such activities account for partly significant differences in individual consumption dispositions (Barth et al., 2012). The seminars were designed to focus equally on providing learning spaces for all persons involved and on creating new services for sustainable consumption on the campus. Students, thus, received guidance in planning and designing informal learning settings in which sustainable consumption can be visualised and experienced by all students and staff members on the campus.

Providers of consumption-related supply on campus formed part of the teaching team or collaborated closely within different projects to promote sustainable consumption on the campus. In this context, it is important to mention that this student-practitioner cooperation was not only understood as a service-relation, but as *transdisciplinary collaboration* (cf. Lang et al., 2011).[2] In such an approach, students and practitioners are equal partners in the process of planning, decision making and acting. 'Solutions' are not developed in the university and brought to a community as a service. Rather the whole process of problem definition, project planning and project management is the subject of deliberation processes between all of the parties involved in a transdisciplinary learning process (Barth and Michelsen, 2013; Scholz, 2006; Stauffacher et al., 2006).

Table 2: Three project seminars on sustainable consumption

	Education for Sustainable Consumption	**Sustainable Consumption on our Campus – A Consumer´s Perspective**	**Sustainable Consumption on our Campus 2.0 – A Consumer´s Perspective**
Term	Winter 2009/10	Winter 2010/11	Summer 2011 (follow-up seminar from winter term 2010/11)
Participants	32	12	17
Semester	3rd	2nd-6th	2nd-6th
Students' disciplinary background	Seminar embedded within the Bachelor programme in Environmental Sciences	Seminar embedded within the Leuphana Bachelor´s complementary study programme, students from different disciplines	Seminar embedded within the Leuphana Bachelor´s complementary study programme, students from different disciplines
Intended learning outcomes	• Students develop a critical understanding of the concept of sustainable consumption. • Students understand the approach and central components of the concept of education for sustainable development (ESD) and are able to adapt this approach to the domain of consumption. • Students know about different types of learning (especially incidental learning) and are able to apply selected learning theories for the development of on-campus learning settings for sustainable consumption. • Students have a basic understanding of project management and are able to plan, implement and evaluate project activities that promote (incidental) learning in the field of ESD.		

[2] „Transdisciplinarity is a reflexive, integrative, method-driven scientific principle aiming at the solution or transition of societal problems and concurrently of related scientific problems by differentiating and integrating knowledge from various scientific and societal bodies of knowledge" (Lang et al., 2011: 2f.). Transdisciplinary collaboration focus on societally relevant problems, intends to enable mutual learning processes among researchers and actors from outside academia and aim at creating knowledge that is solution-oriented, socially robust and transferable to both the scientific and societal practice (ibid.).

In order to engage students in active, relevant and collaborative learning, the seminars were structured in three phases of (1) theoretical input and reflection, (2) project work, and (3) presentation and reflection.

In the three-week *theoretical input and reflection phase*, special emphasis was given to the *clarification of the concepts* of sustainability, sustainable consumption, consumer competence, incidental learning, service learning and transdisciplinary collaboration. These concepts were not only presented to the students, but – based on inputs and text reading – students had to *discuss and critically reflect* the concepts. For instance, students analysed different ideas of sustainable consumption and had to form their own opinion about criteria for sustainable consumption. Furthermore, teachers emphasised the discourse on learning objectives and thereby, students became aware that ESD is not to indoctrinate people, but to develop competencies for critical thinking and action (in the field of sustainable consumption).

In the nine-week service-learning oriented *project work phase*, student groups conducted small projects in transdisciplinary collaboration with *partners in practice* (providers of consumption-related offerings such as coffee shops, cafeteria, campus vegetable stall, bike repair shop), supervised by their seminar facilitators. As a result the on-campus service providers, all of them with a significant influence on the university's culture of consumption, were seen as community partners for the process of service learning. The student projects were informed and guided by the theoretical considerations of the input phase. All projects were conceptualised to explore how consumption settings in the university context can be (re-)designed in order to *stimulate incidental learning processes on sustainable consumption* on campus. Such engagement with the 'real world' calls for close collaboration between students, research supervisors and practitioners from the non-academic world, facilitated by weekly meetings of the project groups and a regular dialogue with the partners in practice as well as teachers. While some groups collaborated more closely with the partners in practice, others had more of a sporadic contact. However, for all projects, the project idea was developed jointly and the basic goals were discussed together. In this respect, the role of the partners was to give ideas and suggestions for projects, to provide a 'field of action' and – where possible – to directly support the project.

The objectives of the projects ranged from making available options for sustainable consumption more visible in the university cafeteria to promoting fair trade coffee to the establishment of a swap shop or the installation of a 'free bookshelf' on campus (cf. Fischer and Rieckmann 2010). Table 3 presents three of these projects.

Table 3: Three project examples

Project	**The Onion Swap Shop**	**Free Book Shelf**	**Meat Free Cafeteria**
Seminar	Education for Sustainable Consumption	Sustainable Consumption on our Campus – A Consumer´s Perspective	Sustainable Consumption on our Campus 2.0 – A Consumer´s Perspective
Idea	Dematerialise consumption by swapping and sharing consumer products,	Free bookshelf for everyone on the main university campus for free and informal exchange of	Sensitise students and staff to the environmental impact of meat consumption; activities to

	exempt from any charges	non-academic literature	encourage choosing the vegetarian dish in the cafeteria
Learning goals	• An increased awareness of the limitations of natural resources • Reflection of one´s own needs • Motivation to spread the idea of sustainable consumption • (Re-)discovering opportunities to re-use goods		
Activities	• Refurbishing an unused room on campus premises • Grand opening party • "Share trading" larger goods and services via lists • Connected to nearby cafeteria	• Concept for installation of book shelf • Integration of different actors on the campus • Collection of non-academic literature among students and professors	• Loyalty cards to collect points for vegetarian dishes • Tombola of prizes for best 'point collectors' • Information flyer on the environmental impact of meat consumption
Results	• Shop is still operating and has been established on the campus • Community outreach	• Bookshelf • Awareness raised for the re-use of books	• Students and staff were sensitised to the environmental impact of meat consumption • The cafeteria operators promoted vegetarian meals

In the two-week *presentation and reflection phase*, students presented the implementation and the results of their projects to the university public and reflected on the whole process. The seminars ended with written project reports that critically discussed the relevant theoretical background and the implementation process. The oral presentation, including feedback from an outside perspective, and the report writing within the project group provided space for critically reflecting on *experiences gained during the project work*.

All student projects can be interpreted against the background of service learning. *Service outcomes* were achieved as contributions to sustainable transformations of the university's 'culture of consumption'. Evaluation of the seminars (based on general observations as well as a critical analysis of students' presentations and final reports) indicates a general development of students' soft skills and competencies in designing and providing settings for sustainable consumption. In all three questionnaire-based seminar evaluations students report that they gained "knowledge about implementation of seminar contents" as their major benefit from the seminar. Additionally, the participating service-provider partners´ awareness of sustainable consumption has increased and all projects contributed to spreading the idea of sustainable consumption on campus. In conclusion, the seminars provided a *two-way process of learning* with both those who provided service and those who received it. Thus, a *balance* between learning processes and service outcomes was achieved.

4. Discussion

The BINK approach sought to strategically utilise a service learning approach for the purpose of stimulating (incidental) consumer learning among students and changes in the organisational culture of consumption. With this twofold focus on organisational and individual outcomes, the service learning approach used in the project has the potential to provide a so far missing link between existing organisational efforts towards greater sustainability on the meso-level and educational approaches focused on promoting individual learning processes in the context of sustainability and consumption on the micro-level.

The following discussion of the project seminars illustrate how their design reflects and realises key educational principles of an experiential service learning approach as discussed by Kolb and Kolb (2005, see Fig. 2) for the promotion of sustainable consumption in universities.

[1] Respect for Learners and their Experience
Create a learning space in which learners feel part of a learning community, where they are known and respected and their learning experience is taken seriously.

[2] Begin Learning with the Learner's Experience of the Subject Matter
Build on an exploration of what students already know and believe to allow them to re-examine and modify their previous knowledge.

[3] Creating and Holding a Hospitable Space for Learning
Create a learning space that encourages the expression of difference and offers the safety to support learners in facing these differences.

[4] Making Space for Conversational Learning
Make space for good conversation as part of the educational process to provide the opportunity for critical reflection on and meaning making about experiences.

[5] Making Space for Development of Expertise
Facilitate deliberate, recursive practices of the learner in areas that are related to the learner's goals to develop the ability to retrieve knowledge for application and transfer to different contexts.

[6] Making Spaces for Acting and Reflecting
Create a learning space in which action and reflection are integral parts of the learning process.

[7] Making Spaces for Feeling and Thinking
Create a learning space in which positive feelings of attraction and interest are essential parts and fear and anxiety are avoided.

[8] Making Space for Inside-Out Learning
Link students' educational experiences to their interests to foster intrinsic motivation and increase learning effectiveness.

[9] Making Space for Learners to take Charge of their own Learning
Support students in taking control of and responsibility for their learning to develop meta-cognitive learning skills.

Figure 2: Educational principles of experiential learning (adopted from Kolb and Kolb, 2005)

The project groups of up to five students each were in constant dialogue with their teachers and cooperated with partners in practice on campus. This constellation provided a learning context that was characterised by a high degree of social interaction and personal dialogue. In the design of the project seminars the students' experiences were not only respected, but utilised as a starting point for developing project ideas. The students were encouraged to reflect on their everyday experiences as consumers on campus in order to identify windows of opportunities for activities that would promote learning about sustainable consumption *(Respect for Learners and their Expertise, Begin Learning with the Learner's Experience of the Subject Matter).*

The organisational setting also allowed students to link their project ideas to their individual interests (e.g. product labelling, public campaigning) and thus to further develop their expertise in these fields (*Making Space for Development of Expertise, Making Space for Inside-Out Learning*). They were further encouraged to take the perspectives of their partners in practice into account and learn about practical processes and structures that could impede or promote aspired changes (*Making Space for Conversational Learning*).

The development of such ideas was supported and nurtured by theoretical input from the teachers and through peer feedback on progress reports in the seminar. As ownership over the projects remained with the project groups, it was up to them, in dialogue with their partner in practice, to decide what parts of their project should be revised in response to the feedback they received *(Making Space for Learners to Take Charge of Their Own Learning*). During the project work phase, the project groups were invited to use the weekly seminar sessions as a workshop setting and to approach the teachers with their questions or problems (*Creating and Holding a Hospitable Space for Learning*). At the end of the term in the reflection and presentation phase, the project groups were challenged to revisit the stages of their project work and to critically reflect on their own work and the experiences they gained from it. In the final session the projects were presented and reflected on in the presence of the partners in practice and other interested university members, where implications for further action were discussed (*Making Spaces for Acting and Reflecting).*

How do these educational perspectives on the project seminars relate to the service outcomes of service learning? Sigmon (1997) argues that there are four types of relations between service and learning: seminars can seek to primarily provide either service (type 1) or learning (type 2) outcomes. The two elements can be treated independently from each other (type 3), or they can be directly related to each other as equal goals enhancing each other (type 4). Sigmon proposes four questions to investigate what type of service learning occurs.

- *Who is involved?* Apart from students and teachers, community members played a crucial role in the seminars. However, it can be argued that students had a double role in this context, being both active proponents of changes towards more sustainable consumption

on campus and being themselves members of the largest population exposed to these changes on campus.

- *What do they seek?* All seminars were embedded in the broader BINK approach that sought to promote changes towards a culture of sustainable consumption in the university. All projects were facing the challenge of balancing the different interests of the overall BINK approach, collaborating practitioners and individual project group members. The seminars also sought to have a long-term impact on sustainable consumption activities on campus. Therefore an identification of win-win situations was required and on-going processes of dialogue and exchange had to be carefully considered in the project seminar design.
- *Who defines service and learning?* The overall objective was set by the project seminar context of the BINK project. The services resulting from the individual projects were expected to bring about changes in the organisational culture of consumption. However, this objective was deliberatively vague and needed further specification in the individual projects. The service outcomes of the seminars themselves were decided on by the students and their collaborators, not by the teachers. Likewise, while the project seminars were designed to achieve overall learning objectives, the decision about specific learning priorities were made by the students in their project contexts.
- *What is the relationship of those involved?* Students and practitioners collaborated on equal terms in the individual projects. The seminar design sought to reduce the apparent power relationship between students and teachers by setting clear and transparent objectives and assessment criteria. These focused on the students' capacity to systematically develop a strategy for their project, reflect on their actions and critically evaluate their own experiences and learning progress in the context of the project work.

These cursory explorations suggest that the BINK approach to service learning in higher education for sustainable development has the potential to link individual learning goals and service outcomes on an organisational level in the tertiary sector. Service learning, thus, offers a promising framework for designing learning environments in higher education. However, the experiences made within the three project seminars also indicate needs for the further advancement of service learning approaches in the field of higher education for sustainable development. Education for sustainable development has its focus on equipping people with overarching key competencies. This overarching learning objective adds another layer of complexity to the service learning approach. This becomes obvious in the relation between learners, teachers and practitioners. Service learning involves the idea of bringing a service to a community in need of this service and thus a transfer of knowledge, competencies or goods with processes of dialogic learning between all parties involved. In an approach that is informed by key principles of education for sustainable development, this understanding is replaced by transdisciplinary collaboration (cf. Lang et al., 2011) – facilitating a deliberation processes between all of the parties involved in the learning process. A number of case studies in education for sustainable development explore the role transdisciplinarity plays for the development of competencies and how learning settings can facilitate transdisciplinary collaboration (Barth, 2011; Klein, 2008; Stauffacher et al., 2006; Steinfeld and Mino, 2009). The case examples illustrate how the integration of the concept of transdisciplinarity into service learning helped to further develop the concept to support rich and meaningful learning settings for students. However, more work needs to be done to further substantiate the nexus between service learning, ESD and transdisciplinarity, both conceptually and empirically.

Another challenge that becomes obvious in the case examples is the innovative potential of a service learning approach to ESD. At a very local focus, the student projects resulting from the project seminars undoubtedly introduced some innovation to the specific service environments on campus. More generally, however, the project ideas as outlined in Table 2 represent well-elaborated and rather conventional initiatives from the environmental education and ESD field. The conceptual approach unfolded in this paper can be regarded primarily as a *procedural* innovation, as it adopted a service learning approach for an ESD context and refined it by aligning it to specific ESD learning objectives. Its potential to facilitate and generate *product* innovations – in the sense of new ideas or outputs – is limited by a number of factors. These include specific implementation conditions as well as more general risks inherent in participatory ESD practices. Regarding the specific aspects, it must be taken into consideration that all courses were delivered within a time span of only about 15 weeks with weekly sessions of 90 minutes. Given these time restrictions, the lecturers pre-structured the process to a fairly high degree, for example by focusing their inputs closely on existing tools and establishing contacts to service providers well before the start of the course. These conditions might have arguably had an impeding effect on the development of more innovative ideas. In a more general perspective, recent works on participatory practices to ESD argue that such approaches often fail to critically reflect on the socio-historic context that dominant discourses are rooted in (e.g. Læssøe, 2010). In order to avoid such limitations, Læssøe suggests to focus more explicitly on "dilemmas, dissensus and deliberative communication" (ibid.: 54). This bears a promising perspective to enhance the potential of the project seminars discussed in this paper to produce both innovative learning processes and innovative products.

5. Conclusion

This paper deals with sustainable consumption as an important but still marginalised topic in higher education for sustainable development. Addressing change in the learners' own organisation and using service learning to design learning settings is presented here as a promising approach in which learning takes place as an active form of influencing the organisational culture of consumption and at the same time as a more absorbing form of learning that is influenced by the very same culture. In this perspective, the approach has the potential to contribute to moving the agenda of higher education for sustainable development in the context of consumption forward towards becoming a project of all stakeholders rather than being an object of organisational management processes. Using the analytical framework of a service-learning approach based on experiential learning not only helps to consider specific characteristics of the learning process but also opens the discussion for education for sustainable development with the service-learning movement. In turn, through the transdisciplinary approach of ESD the concept of service learning is expanded and enriched. The linkage of service learning and transdisciplinary collaboration facilitates the combination of research (active knowledge co-creation with project providers) with service learning (tacit knowledge creation through participation in and observation of project providers' settings).

An area that needs further study is the question of how far the service outcomes of the projects have further stimulated (incidental) learning processes among the broader community on campus. The students' reflections in their project reports suggest that such effects have indeed taken place. Some students' project evaluation results indicate a high visibility of the projects within the university community, based on participation rates, number of Facebook

visitors and feedback through questionnaires. Though more empirical research is needed to explore how and to what extent service learning outcomes on university campuses can trigger incidental learning processes among university members not directly involved in the projects. Another area for further study refers to the fact that two of the project seminars were offered to students from different disciplinary backgrounds. The formation of project groups bringing together actors from different disciplines and from the broader community, the subsequent processes of developing a common research and development question and an implementation design, and the final reflection of the results in terms of academic learning and service outcome closely resembles characteristics of a transdisciplinary approach (cf. Lang et al., 2012). More research is needed, both to conceptually relate transdisciplinary and service learning approaches, and to empirically investigate its potential for stimulating learning processes in the context of ESD.

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